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ABSTRACT

Presented are survey data from nursing homes and halfway houses on the ccsts associated with the provision of community-based residential care for the psychosocially disabled, along with an examination of the differences in those costs as they relate to characteristics of disability groups or types of facilities, and an analysis of the contributions of various service and organizational factors to those costs. Discussed are the study's methodology, an overview of operating and startup costs for residential facilities, and costs for residential services to five disability groups (mentally ill adults, mentally ill juveniles, aged mentally ill, alcoholics, and drug abusers). The economics of residential facilities are discussed in terms of environmental variables (such as locational and regional determinants) and organizational variables (such as staffing patterns). A comprehensive model for residential costs is presented along with a comparison of three independent samples of residential programs. Costs to community mental health centers for residential services are also covered. Among the findings discussed is that costs for residential services are highly related to the level of services provided inhouse and to the disability group served. A bibliography is provided, along with an appendix that includes tabular data. (DLS)

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DETERMINING THE COSTS OF COMMUNITY RESIDENTIAL SERVICES FOR THE PSYCHOSOCIALLY DISABLED

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Chapter I. Introduction

BACKGROUND

Since the turn of the century, halfway house programs have bridged the transition from institutional care to normal community living. In recent years, a series of events—drastic reductions in the numbers of patients maintained in State mental hospitals; increased public and professional concern about the treatment afforded the chronically mentally disabled; legal decisions safeguarding the civil rights and liberties of mental patients; the mounting of major treatment, rehabilitation, and educational programs aimed at combating the growing problem of substance abuse —have placed a new and urgent challenge to the Nation's total mental health delivery system. One effect of these developments has been a heightened interest in expanding the role and utilization of community-based residential facilities.

While the halfway house continues to fulfill a primary role in serving both as a transitional setting as well as an alternative to institutional placement, a number of new formats for residential programs have developed. This evolutionary process has had the effect of enabling residential programs to respond to the needs of clients drawn from a broad range of levels of ability and disability. Clients requiring more intensive supervision and care may be served in nursing homes or domiciliary programs attached to psychiatric hospitals. Clients needing a less intensive setting may be placed in the more moderately supervised group home and the even more autonomous apartment living programs. The development of community-based residential programs along this continum of varying levels of care and supervision has become a significant factor in the growth of community mental health services.

Further, while community-based residential services have become differentiated with regard to levels of care, such programs have also expanded to include a wider array of disability groups. Newer facilities for drug abusers, juveniles, and the aged add to the increasing ranks of programs for the adult mentally ill and alcoholics.[1]

However, this rapid upsurge of community residential services has left many gaps in both the planning and execution of integrated service packages. Additionally, since there has been no independent organization or governmental unit charged with overseeing the development of these community options, relatively little is known about their operating characteristics, effectiveness, or cost.

Recently, Public Law 94-63, the "Community Mental Health Centers' Amendments of 1975," mandated that residential services be included as an integral element in the total service offering of federally assisted Community Mental Health Centers (CMHC). Moreover, the act has added new priorities for services to children and the aged and has required Centers to assure that appropriate services, which may include residential programs, are available to substance abusers, i.e., alcoholics and drug users.

To assist the National Institute of Mental Health (NIMH) in estimating the costs of providing these varied residential services, Horizon House Institute has assembled and reviewed a large number of sources of financial data. In addition, interviews focused on costs and services were conducted with managers and directors of residential programs and with CMHC personnel who are involved in providing residential services through the CMHC.

The objectives of this report are to determine the costs associated with the provision of community-based residential care, to examine differences in costs as they relate to characteristics of disability groups or to types of facilities, and to analyze the contribu-

[1] Although halfway house programs have been in use for over a century, a 1973 NIMH inventory of halfway house programs for the mentally ill and alcoholics found that 61 percent ($N = 806$) had first opened their doors within the past 5 years (1968-1973).

tions of various service and organizational factors to the costs of providing residential services.

CATEGORIZING RESIDENTIAL PROGRAMS

The inclusive concept of community-based residential services, often referred to as halfway houses, is not readily operationalized. There is no agreed upon set of definitions which categorizes the wide range of residential facilities in the psychosocial rehabilitation field. Intake criteria, target populations served, length of stay, treatment objectives, services offered, staffing patterns, costs, and other factors tend to be so diverse that a unified classification is difficult to formulate. One reason for this is that programs have been developed to meet the varying needs of their target populations and the particularities of local communities. Moreover, goals and procedures of such programs tend to vary as a function of disability group served, the skills and range of staff utilized, and the overall availability of treatment resources within the community.

Further contributing to the problem of developing a meaningful classification framework is the tendency for essentially similar types of programs to be referred to (by different planning or administrative bodies) under varying descriptive labels. Such designations as "boarding home," "board and care facility," "group home," "hostel," or "domiciliary care facility," for example, tend to be used somewhat interchangeably by different authorities to describe what is essentially the same type of residential service. Similiarly, "family care home," "group foster home," and "family foster home" may have been used as basically comparable programs. The same problems can be observed with respect to varying descriptive terms for halfway house type programs, e.g., "halfway house," "sheltered living home," "transitional home," "rehabilitation house," as well as for varying apartment-dwelling types of programs, e.g., "apartment living training facility," "apartment living," "supervised apartment," "semiindependent apartments."

Given this complex array of overlapping descriptions of community residential programs, a number of dimensions might be employed in organizing a typology of programs. One framework, for example, might be based on the size of the facility, i.e., the number of clients who typically are served in a particular kind of program. Another dimension might stress the types of staff employed in the facility. Still another might reflect the intensity of care and supervision provided as part of the facility's program.

Since this report is primarily focused on costs for residential care, we have employed a classification system which relates to a major determinant of costs, the dimension of extensiveness of service (number and range) provided within the facility as part of its ongoing program. This dimension is not of course totally independent; i.e., it is at least partly related to the intensity of care and differential staff pattern noted above. However, the fact that these variables probably correlate positively with each other does not diminish the usefulness of this schema. Rather, it may offer a convenient unidimensional basis for a taxonomy of facilities which encompasses a number of relevant classificatory elements.

The schema followed in this report assumes a continuum extending through five levels of extensiveness of services, ranging from nursing homes at one extreme to apartment programs at the other. Brief descriptions of the characteristics of the major types of facilities included in this continuum are as follows:

Type I: Facilities for chronically ill persons who require attention by medically trained staff, including nurses. Such facilities, in addition to providing room and board, serve persons not in need of hospital care but still requiring medical supervision, skilled nursing or limited nursing attention. Estimated period of residence is short term to indefinite. Prototypical facilities in this level are skilled nursing homes and intermediate care facilities.

Type II: Facilities offering nonmedical residential services with around-the-clock supervision and professional staff in attendance. Such facilities include room, board, counseling or therapy, and assistance in the activities of daily living. These facilities may also include vocational and educational programs. Estimated average period of residence is one to six months. Prototypical facilities in this level are halfway houses; other descriptors in this level include "transitional homes" and "rehabilitation houses."

Type III: Non-medical residences providing around-the-clock supervision under paraprofessional or limited professional staff and offering room and board and limited assistance in the activities of daily living. Estimated average period of residence is six months to indefinite. The prototypical facilities in this level are group homes; other descriptors in this level include "board and care facilities," "extended care facilities," and "hostels."

Type IV: Residential facilities providing from one or two to as high as fifteen to twenty client beds.

Such facilities are typically operated by nonprofessional proprietors and offer few services other than provision of room and board and minimal personal supervision. The facility setting may be in a private home under the supervision of a sponsoring family or an individual proprietor. Estimated period of residence is short term to indefinite. Prototypical facilities included in this level are foster homes and boarding homes. Additional descriptors included in this level are "domiciliary care facilities," "individual foster homes," and "group foster homes."

Type V: Semiindependent settings designed to accommodate approximately two to four persons usually in apartments. Such facilities are utilized for individuals capable of higher levels of independent functioning so that live-in staff are not required. The resident assumes major responsibility for activities of daily living (e.g., food preparation, housekeeping and finances). Services include, after initial assistance in location and placement into these settings, periodic supervisory followup visitations. The estimated period of residence is short term to indefinite. The prototypical facilities in this level are supervised apartments. Other descriptors in this category are "transitional apartments," "sheltered apartments," and "cooperative apartments."

Based on these classifications, a taxonomy of facilities has been developed which reflects the two central dimensions which are the organizing elements for this report. As shown in Figure 1, the horizontal axis represents the level of extensiveness of services provided at the residential facility, from the most extensive to the least extensive. The vertical axis contains the two primary disability groups with which CMHC's are primarily concerned: the mentally ill and substance abusers. We have subdivided the "mentally ill" into three age groupings which are commonly employed in planning and operations: (1) facilities for adults, (2) facilities for juveniles, and (3) facilities for the aged. We have also subdivided facilities for substance abusers into alcoholics and drug abusers.

Twenty-five types of facilities are "logically" possible in the above taxonomy, although each type may not empirically exist. For example, relatively unsupervised residences, such as apartment programs, may not be seen as appropriate settings for juveniles. In fact, our review of apartment programs disclosed no such facilities for juveniles, alcoholics or drug abusers. This is reflected in figure 1, which indicates the types of facilities for which costs were obtained, as noted by double asterisks(**). In all, cost data were assembled for examples of 17 types of facilities. An overview of facility costs is presented in the following chapter, and more detailed presentations for each of these types of facilities are offered in subsequent chapters which consider in turn each of the five disability groups and facilities at different levels of care for each population.

Additionally, information has been gathered which specifically addresses the question of what are the "net" costs to federally assisted CMHC's for placing and maintaining a client in a residential program. A small survey of such programs affiliated with CMHC's and a companion survey of selected CMHC's provides data on typical costs paid by CMHC's for halfway house services. These findings are presented in Chapter VI. Costs to Community Mental Health Centers for Halfway House Services.

APPROACHES TO COST ASSESSMENT FOR RESIDENTIAL SERVICES

Both the relative newness of residential programs and the variety of formats in which they appear complicate the task of determining the components of program cost. Further, cost alone, while an important variable in planning for services, should not be assumed to indicate quality or performance of program goals. Two programs of equal cost might provide very unequal services which produces unequal results (outcomes) for the client.

Yet information about the average costs for providing residential services can be helpful in the planning and evaluating of those services if there is adequate specification of the variables which determine the level of cost. As shown in chapter III, two major determinants of costs are the level of services provided and the disability group receiving those services. Additionally, costs are impacted by a variety of external (environmental) and internal (organizational) variables which are introduced in the analyses below.

To control for the effects of inflation, which diminishes the value of much existing data, Horizon House Institute has undertaken three small surveys in 1976 and 1977. The first was focused on costs for halfway houses, still a typical modality for residential services. The second addressed apartment programs, a relatively new and undocumented program model. The third surveyed CMHC's and their affiliates which provide residential services.

However, several large existing data sets, even if

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Figure 1. A typology for extensiveness of services by major client group for residential facilities

Typical Facility:	Type I (Nursing Home)	Type II (Halfway House)	Type III (Group Home)	Type IV (Foster/ Boarding Home)	Type V (Apartment Program)
Disability group:					
Mentally ill					
Adults	**	**	**	**	**
Juveniles	--	**	**	**	--
Aged	**	--	--	**	**
Substance abusers					
Alcoholics	**	**	--	**	--
Drug abusers	**	**	--	**	--

Cells with double asterisks(**) indicate the types of programs for which data were obtained.

somewhat "dated" with regard to assessing the current level of costs, provide important opportunities for measuring the influence of various factors on costs. Specifically, an NIMH inventory of halfway houses undertaken in 1973 includes responses from over 350 facilities to questions of annual budget, types of services, number of clients, type of legal auspice and other variables which can influence costs. These data have been utilized extensively in the examination of residential costs and play a major role in the analyses of costs variation presented in this effort.

The NIMH national survey of halfway house programs is complemented by a separate, though somewhat overlapping, survey conducted in 1974 by Horizon House Institute. Over 230 halfway house programs responded to this somewhat more recent survey, answering many budgetary and staffing questions which were generally consistent with those employed by NIMH. These two separate surveys of halfway houses provide an opportunity to compare inferences drawn from each. The concluding section of chapter V tests for the congruence of findings for the two samples.

A further opportunity to validate the analysis of residential costs is offered by comparison of these halfway house data with preliminary findings from a large ($N = 3{,}000$) national survey of nursing homes undertaken by the Social Security Administration. While nursing homes and halfway houses typically serve differing populations, and nursing homes are more often operated as proprietary organizations, common cost-related factors shared by these two types of residential programs may become evident through a cross-validating examination of each. For example, if regional variations in cost for halfway houses and nursing homes are found to be similar, not only have we determined that costs for these facilities are, in part, a function of geographical location, but also that a broad range of residential facilities will be subject, in all likelihood, to a similar geographical influence.

In summary, several data sources have been assembled in order to assess both the current level and components of residential facility costs. These data sets refer to many types of programs serving five disability groups. In the following analyses, conclusions based on data from independent surveys are reviewed and compared to provide a model for assessing the cost of residential services.

Chapter II. Methods

INTRODUCTION

Two serious constraints operate to limit reliable assessments of residential program costs. First, no single extant survey provides an adequate picture of the wide range of residential programs to be reviewed. Second, executing a new, large scale national survey would require resources of some magnitude. Thus, activity has centered on problems of assembling, evaluating and synthesizing existing data from a variety of sources. Additionally, in order to update cost estimates for halfway houses and to gather data on the newest types of residential services, i.e., apartment programs, a limited, highly focused national telephone survey was conducted. Methodologies employed in this survey are discussed in this chapter as well as a brief review of the previous surveys and studies which provided much of the basic data on costs. To obtain costs for residential facilities operated by or affiliated with CMHC's, two telephone surveys were executed.

While data on costs have been drawn from a large number of sources, principal data sources include a 1974 survey by the Minnesota State Office of Planning, which surveyed many of the approximately 1,700 facilities in the State which serve the mentally ill and substance abusers (alcoholics and drug abusers). Boarding home costs were obtained from a statewide survey in Pennsylvania conducted in 1974 which covered approximately 1,500 facilities. Basic information about halfway house costs for mentally ill adults, alcoholics and drug abusers are drawn from the Horizon House Institute Survey in 1974 (N = 472) and the NIMH Inventory of Halfway Houses, conducted in 1973 (N = 806). We have supplemented these last two data sources by our own survey (1976) of 61 halfway houses serving 4 disability groups and 16 apartment programs, 14 for mentally ill adults and 2 for the aged. Cost data for nursing homes were largely taken from a national survey conducted by the National Center for Health Statistics (NCHS), Public Health Service, in 1973 of over 1,900 such facilities. Costs for foster care for juveniles were reported by the Michigan Department of Social Services in 1974 in a survey of 400 foster families in that State. In the following discussion we review methods employed to collect *new* data for our assessment of costs for residential programs.

PRIMARY DATA COLLECTION: A SAMPLE SURVEY OF HALFWAY HOUSES AND APARTMENT PROGRAMS

A random sample of halfway house programs was drawn from two large inventories: the NIMH survey of 1973 (N = 806) and the HHI survey of 1974 (N = 472). Additionally, a list of CMHC related facilities provided by the Division of Biometry and Epidemiology, NIMH, was used to increase the total potential sample as well as to identify a number of programs affiliated with or sponsored by CMHC's. This last criterion provided an opportunity for gathering data on the "net" cost to CMHC's for providing residential services by asking facilities what support, if any, was furnished by a CMHC. From this pool of potential respondents, additional selection criteria were employed in identifying an appropriate sample. Since many of the facilities listed in the two inventories served mixed client populations, e.g., mentally ill and drug abusers, potential respondents were limited to essentially "pure type" facilities which served predominantly only one disability group. Further, in order to test new data against previous reports from the same facilities, cases were excluded which did not report costs to NIMH or HHI in an earlier survey. These procedures yielded 391 cases from the NIMH data set and 262 cases from the HHI data set. From this list, random samples of facilities for each of the four client groups were drawn (N = 156).

Letters were sent to the directors of these 156 facilities asking for their participation in a telephone conversation to review operating and startup costs. Sixty-one respondents (39%) were eventually interviewed. Responding facilities were distributed across

disability groups in the following manner: 18 programs serving adult mentally ill, 11 programs serving mentally ill juveniles, 21 programs serving alcoholics and 11 programs serving drug abusers. Thirty-nine of these 61 cases had been previously surveyed by both NIMH and HHI, 20 had been surveyed only by HHI in 1974 and 2 had been surveyed by NIMH only. Thus, for most cases, information from two previous rounds of data collection were used in conjunction with the results of our most recent effort, allowing examination of variations over time as well as assessment of the reliability of these data.

REPRESENTATIVES OF THE OBTAINED SAMPLE

A test variable called PROGRAM was developed that identifies which of three levels of program activity are available at the residence. Facilities within program level 1 function primarily as a room and board program but may include ancillary services including social/recreational, daily living skill training, referral, and follow-up services.[1] Level 2 programs provide counseling services, usually in the form of group, family or individual counseling. Programs at the third level also incorporate one or more of the following service elements in addition to those defined in levels 1 and 2: Alcoholics Anonymous services, detoxification, educational program, vocational programs or job placement.

Our primary test for representativeness of the sample is shown in that the obtained samples and parent populations (HHI and NIMH inventories) were found to have similar distributions on the program variable, even though program characteristics were not employed as criteria in selecting the 156 potential respondents. Specifically, of the 41 cases surveyed by NIMH in 1973 and HHI in 1976, about 50 percent were in program level 3, approximately the same percentage, 53 percent, as the parent population. Similarly, 45 percent of the cases surveyed by HHI in 1974 and again in 1976 were at program level 3 while 42 percent of the original larger sample reported these types of programs. This congruence between our recent subsample and the two earlier and larger samples supports the conclusion that the obtained sample is sufficiently representative of the halfway house population.

[1] By definition, most halfway houses are excluded from this category since a halfway house is a type of service which offers an in-house program in addition to room and board. In fact, only two of the 61 cases were placed in level 1.

Table 1. Comparison of program characteristics for two data sources: Confirmation of sampling design (in percent)

Sources of sample cases	*Program level*[a]		
National Institute of Mental Health Inventory	*1*	*2*	*3*
Halfway houses in 1973 survey (N = 759, *excluding* 41 cases in reinterview)	15%	32%	53%
Halfway houses reinterviewed (1976) (N = 41)	5%	44%	51%
Horizon House Institute Survey			
Halfway houses in 1974 survey (N = 189, *excluding* 59 cases in reinterview)	2%	56%	42%
Halfway houses in reinterview (1976) (N = 59)	2%	53%	45%

[a] Facilities within program level 1 function primarily as a room and board program, yet may include ancillary sources such as social/recreational, daily living skill training, referral, and followup to ex-resident. Level 2 programs provide therapy services, usually in the form of group, family and individual therapy. Programs at the highest level, 3, also incorporate two or more of the following service elements, in addition to those defined in levels 1 and 2: AA services, detoxification, educational, vocational or job placement.

PRIMARY DATA COLLECTION: APARTMENT PROGRAMS

Apartment programs for the mentally ill represent a relatively new approach in providing residential services. They offer perhaps the least restrictive and least intensive supportive setting for clients. In seeking costs for apartment programs, it was determined that a "snowball" sample might prove effective, given the lack of directories or inventories for those facilities. Beginning with a list of apartment programs in Goldmeier and notes on apartment programs from other sources, a number of programs were contacted and asked for information about their costs, including startup (Goldmeier 1975). Then, respondents were asked if they could refer us to another program like their own—generating the snowball sample. This approach yielded a total sample of 16 apartment programs, 14 serving mentally ill adults and 2 serving the aged. Per diem costs and startup costs for these programs are reviewed in chapter IV. While this informal sample of apartment programs is open to many sources of potential error, responses were obtained for programs from each region of the country operated under various auspices. Thus, the coverage of the sample insures some representativeness of costs for these types of services.

SECONDARY SOURCE MATERIALS

A wide array of secondary source documents was obtained for review. Materials included both published and unpublished reports of statewide enumerations, sample surveys, exemplary programs and individual case studies. In particular, two sets of secondary source materials proved most helpful in the current effort. First, the Minnesota Comprehensive Plan (1974) reports the results of a survey of a large number of group homes, halfway houses and boarding homes serving mentally ill adults, juveniles and substance abusers. In addition to reports of per diem operating costs, information on estimated startup costs added significantly to this effort.

A concern for the reliability and validity of the results of statistical analyses of halfway house data (NIMH and HHI) has been addressed by a cross-validation of findings. However, if factors influencing cost for halfway houses can be confirmed for other types of residential programs, a general model of residential economics, applicable to a wider range of facilities, could be articulated. Toward this goal, staff of the Social Security Administration's Division of Insurance Studies have cooperated in this effort by providing statistical results from a national sample of nursing homes. Correlation matrices and a preliminary multiple regression for nursing homes have been compared with results obtained from the halfway house data sets. (Chapter V, The Economics of Residential Facilities)

Another valuable source of information about residential program costs and operations is CRISP (Community Residences Information Services Program), Westchester Community Service Council, Inc. CRISP personnel provided invaluable assistance by offering data on residential programs and by providing access to other sources of data as well as being instrumental in developing insights on relationships among cost variables.

Other secondary sources included results of National and State surveys, e.g., a National survey of nursing homes conducted by the National Center for Health Statistics, and some case studies. In most instances we have accepted reports at face value, lacking the resources to engage in any empirical validation of most findings.

However, only a small portion of extant documents were actually incorporated in this effort. Principally, only relatively more recent data and costs based on actual surveys were employed.

INFLATIONARY FACTORS FOR RESIDENTIAL SERVICES

Inflation, a very significant factor in public spending for the 1970's, limits our ability to make direct comparisons of cost data collected at different points in time. In the following section, inflation for residential programs is estimated and components of the national inflation rate relevant to community residential services are reviewed.

An estimate of increasing costs for residential programs over time is derived from the results of a re-survey of halfway houses which were first surveyed in 1973 and 1974. Table 2 below shows substantial increases for most types of facilities.[2] The impact of inflation on planning efforts may be substantial. If, for example, a planner with a budget of $50,000 for

[2] However, facility cost increases can also be attributed to changes in services or staffing. These particular data do not differentiate "quality" changes from "inflationary" changes. Appendix table 5 does show, separately, cost increments for hospitals due to price changes and service changes.

Table 2. Average per diem costs by disability group from cases reinterviewed in 1976

Disability groups	Average per diem costs			% Change in average per diem costs	
	1973 NIMH	1974 HHI	1976 Reinterview	1973-74	1974-76
Mentally ill adults	$12.00	$14.94	$18.99	+25	+27
juveniles	17.89	27.73	27.76	+55	0
Alcoholics	9.95	10.70	13.88	+ 8	+30
Drug abusers	——	13.70	19.92	——	+45
N	(33)	(59)	(61)	(33)	(59)

Source: 1976 HHI Survey Data

residential services bases his estimate on 1973 data for halfway house services for mentally ill adults ($12.00), he may plan for 100 service days for 41 clients, yet under 1976 prices ($19.00), he can anticipate serving only 26 clients, holding constant the number of service days required per client. The same $50,000 is likely to "buy" even less service in the future.

Importantly, residential services, given the specific cost components they entail, may be relatively more subject to inflationary pressures than other non-medical services. In particular, housing prices have experienced very substantial price increases. As shown in appendix table 7, the price index (1967 base) for home ownership was 189.6 in May, 1976. For the same time frame, the index score for rents was 143.8. Food prices have also increased dramatically over the past decade. For May 1976, food prices were about 79% higher than in 1967.

However, costs for food, housing and staff wages vary substantially by region. Nursing home costs for the period 1964-1974 for each of the four major Census regions are shown in appendix table 6. Not only are prices significantly different by region ($13.51 per diem for the South in 1974 and $21.43 per diem for the Northeast) but cost increments over time also differ by region.

Yet, not all cost changes over time can be attributed to inflation since advances in the quality of services may also generate higher costs. Appendix table 5, "The Contribution of Selected Variables to Inflation on Hospital Costs," separates the increase in hospital costs due to wage and price increases (inflation) and "improved services." The table indicates that since 1950, the sharp rise in hospital costs (as much as 14.8 percent a year) is about equally attributable to "inflation" and improved services.

Thus, inflation has played and is likely to continue to play a major role in changing prices for medical and residential services. Past inflation also restricts the direct comparison of data collected at different points in time. While no systematic conversion of cost data to a common "base year" has been accomplished, appendix tables 5, 6, and 7 provide information which allows adjustment of older cost data to more contemporary estimates.

Chapter III. An Overview of Operating and Startup Costs for Residential Facilities

OPERATING COSTS

In general, costs for residential services vary according to the intensity of care and supervision provided. Thus, as a rule, nursing home and halfway house programs are more expensive than group or foster home programs, while apartment programs with few or no inhouse services are the least costly. However, there are significant variations in the cost of serving different disability groups within the same general category of facilities. Group homes for children, for example, are often more costly than halfway houses for adults. Some portion of these higher costs for serving certain disability groups reflect higher staff to client ratios, differences in organizational auspices, e.g., proprietary facilities tend to be less costly than nonprofit, or differences in local environments, e.g., wage rates and housing prices vary widely across the United States.

In subsequent chapters, specific cost data for residential facilities serving each of the five target populations[1] are presented and a general framework for predicting residential costs is developed. The summarized overview of operating costs presented here offers a comparative picture of residential program costs and initiates an analysis of the determinants of costs which is carried on in the following chapter. Additionally, startup costs, i.e., expenditures required in securing and preparing a site, and recruiting and training staff are reviewed.

Table 3 displays selected average per diem costs by type of facility and by type of disability group served.[2] To further distinguish types of programs, the general category of "group, foster, and boarding homes" is broken out into "group" and "foster and boarding" so that costs for these distinct facilities can be shown separately. Sources of these data are also recorded in the table.

The absence of cost data for eight possible facility categories, e.g., the "empty" cell for nursing homes for juveniles, is largely a function of the relative rarity of these types of programs. When juveniles require nursing home care they may be admitted to a convalescent center or nursing home which does not specialize in providing services for juveniles. Further, no apartment programs for alcoholics or drug abusers were disclosed through an extensive literature search. It may be concluded that it is not typical for services to be developed to respond to the relatively long-term residential needs of these disability groups.

As table 3 indicates, halfway house and group home services for the mentally ill are relatively more costly than programs for substance abusers. Further, facilities which serve juveniles report the highest costs (close to $30 per diem) for halfway houses and group homes.

While there is substantial variation in the cost of providing residential services according to both the intensity of services and the type of disability group served, there are also substantial variations within each of the cells shown in table 3. A variety of factors including staffing patterns, location, occupancy rate and other organizational characteristics, determine the actual cost of such services. Chapter V, The Economics of Residential Facilities, assesses the contributions of each of these variables as they impact the cost of community-based services.

STARTUP COSTS

While it is typical to consider the average cost per patient day as the basic unit of residential services, a

[1] These target groups include: among the mentally ill, (1) juveniles, (2) adults and (3) aged; and among substance abusers, (4) alcoholics, and (5) drug abusers.

[2] It should be noted that a number of independently developed data sources are drawn from in order to obtain cost estimates for residential services for each disability group. Those included met strict criteria for specificity and timeliness which were required in order to provide data useful to a national audience. For two types of facilities, additional data collection was undertaken (see Methods) in order to provide more current cost estimates.

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Table 3. Mean per diem costs for seventeen types[a] of residential services: Costs by disability group and level of care

	Mentally ill: Adults	Juveniles	Aged	Substance abusers: Alcoholics	Drug abusers
Least intensive					
Apartment program	$3.15* (14)	---	2.87* (2)	---	---
Moderately intensive					
Foster/ boarding	$5.80x (1494)	4.51o (400)	5.80x (1494)	8.21+ (75)	8.21+ (75)
Group home	$16.44+ (159)	30.38# (5)	---	---	---
Halfway house	$18.99* (18)	27.76* (11)	---	13.88* (21)	19.92* (11)
Most intensive					
Nursing homes	$18.08+ NA	---	15.72@ (1908)	18.08+ NA	18.68+ NA

[a] Approximate N's are shown in parentheses ( ) below each mean; NA indicates that the N was not available.

Sources:

+ State of Minnesota, Office of Regional Development. "Cost Projections for Community-Based Programs." St. Paul, 1974
* Horizon House Institute Survey of Residential Programs, 1976
@ U.S. Public Health Service. "National Nursing Home Survey," Rockville, Md., 1975
o State of Michigan, Department of Social Services, 1975
Community Residences Information Services Program, Westchester, N.Y., 1975
x Commonwealth of Pennsylvania, "Survey of Boarding Homes," 1974

review of the costs associated with program startup discloses that initial costs for establishing a residential program may equal or surpass the annual budget for operating the facility. Attention is directed to startup costs not only because they amount to a substantial investment of resources but also because they may represent nonreimbursable costs under the various funding systems available for subsequent support of ongoing operating costs. A program which projects a given level of income based upon billing for services must either find extraordinary sources of revenues to amortize startup costs or it must include some repayment, if a loan procedure is adopted, within the schedule of costs for services.

A variety of different types of expenditures may be included in initial preparations for establishing a residential program. Startup costs may be defined as those costs associated with the establishment of a program, i.e., costs incurred prior to any delivery of services to clients. Startup costs include building rent and rent deposits, mortgages, incorporation and related legal fees, remodeling to meet building code standards or program requirements, personnel recruitment and training efforts, rent or purchase of furnishings and consumable supplies, professional services, and community relations efforts.

In the followup survey of 61 halfway houses, a portion of those facilities which had begun operations prior to 1970 were selected and asked questions on startup costs. It was anticipated that recall of startup costs from older facilities might prove impracticable due both to concern for reliable retrieval of older data and to the considerable change in housing and construction prices over the past decade. Twenty-three programs were able to provide information on initial expenditures based on actual or estimated outlays. Two additional sources of startup data included data abstracted from a large survey conducted by the State of Minnesota and the results of a survey of apartment programs conducted by Halfway House Institute (HHI) in 1976. Startup costs for a "family care" program in New York State are also reviewed.

From the case data collected by HHI two observations emerged. First, the magnitude of initial cost for opening a new facility is reduced if the sponsoring agency has had previous experience in operating other residential programs. Second, program startup is, for the most part, more readily accomplished when the program is in good standing with the community and its representatives. For example, a halfway house for alcoholics in Illinois reported minimal out-of-pocket startup expenses since a local Alcoholics Anonymous chapter donated manpower and materials for renovating a building.

Typically, the largest costs incurred during start-

Table 4. Per client costs for developing residential programs for three disability groups: Results of a Minnesota survey (1974) [a]

	Startup Costs [b]		
	Level of care		
	High (Nursing home)	Medium (Halfway house)	Low (Board and care, foster home)
Mentally ill	$15,000	$12,000	$ 6,000
Mentally retarded	15,000	13,500	——
Substance abuse—Drug/alcohol	15,000	12,000	10,000

[a] Approximate N's for the three types of facilities were MI = 159; MR = 511; SA = 81.
[b] Acquiring sites, construction, amortization of costs, and other costs incurred before opening of the facility.
Source: *Minnesota Comprehensive* Plan, 1974.

up are generated by the acquisition and/or renovation of the physical plant. However, the very nature of a community-based residential program often induces an unexpected set of costs for dealing with community opposition to the establishment of a facility. While public education efforts can be planned for and expenses for these efforts can be estimated by the parent organization, it is still possible that costly legal battles of indeterminate costs will ensue.[3] A recent legal encounter in an attempt to establish a halfway house required the expenditure of funds for legal fees in excess of $50,000.

For estimates of actual costs encountered in developing community residences, materials are reproduced from the Minnesota Comprehensive Plan of 1974. These data on costs for establishing community residential programs varying in level of care are shown in table 4. Expenditures for startup vary substantially by the level of care or services provided and by the disability group served, a pattern similar to that shown for operating costs in table 3. For intensive care facilities, including nursing homes, startup costs are estimated at $15,000 per bed. At the less intensive level of care which includes halfway houses, the cost for substance abusers and the mentally ill average about $12,000 per client bed. Costs for facilities for the mentally retarded reported higher startup costs at $13,500 per bed. Board and care homes for the mentally ill are estimated to have cost approximately $6,000 per bed to establish, while the somewhat more intensive service of domiciliary care was estimated to have cost about $10,000 per bed to establish.

The Horizon House Institute survey of apartment programs undertaken in 1976 (N = 16) included questions on startup costs for these programs. Approximately half of the facilities responded, reporting that the least intensive residential program startup costs averaged about $1,000 per client. Thus, costs for initiation of residential programs are substantial and, as a rule of thumb, they are roughly equal in level to the annual cost of supporting the total program. However, innovative approaches which draw upon existing community resources for housing may significantly reduce the costs for initiating residential services.

An example of a method for reducing startup costs is highlighted in a plan for a transitional program to utilize rental apartments (Chester County, Pennsylvania). Startup costs for this program, which include staff training and staff salaries before clients are placed, are budgeted at $5,000 per client slot, comparing favorably with costs for halfway houses. Another recent proposal to establish a family-based residential program (New York City) seeks to provide family care services to the mentally retarded by legally incorporating a number of provider homes which are already active in the field of foster care. Organizational costs, incorporation fees, and training for managerial and service staff are estimated to require less than $480 per client slot in the program.

In conclusion, initial costs are highly variable and subject to significant economies if physical plant requirements are minimized and if existing community resources can be drawn upon. Remaining cost elements for startup include the investment in initial staffing and staff training required to establish the care and service program before clients are admitted to the residence. The greater the intensity of services, the greater the initial costs.

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[3] Although our primary concern is with average costs within a normal operating schedule, it should be noted that there are considerable "risks" in the planning and operation of halfway houses. The ability to establish a planned-for facility is problematic given the legal and social climate of many residential areas. For review of problems of community opposition see Piasecki et al., *A National Survey of Community-Based Residential Facilities*, Horizon House Institute, Philadelphia, 1977.

Chapter IV.
Costs for Residential Services to Five Disability Groups

INTRODUCTION

The typology of community-based residential facilities, presented in Chapter I, was developed from the two key dimensions distinguishing among residential programs: (1) the disability group served, and (2) the intensity of supervision and care. These two dimensions are also highly related to the costs for providing residential services. Therefore, in the following discussion of residential costs for each of the five focal disability groups, facilities with varying intensities of service are considered separately. Within each of the five sections below (one for each disability group) services are presented in order from the most intensive, e.g., nursing homes, to the least intensive, e.g., sheltered apartment programs.

RESIDENTIAL PROGRAMS FOR MENTALLY ILL ADULTS

Nursing Homes [1]—Data from nursing homes surveyed by NCHS U.S. Dept. of Health, Education, and Welfare, 1975) in 1974 indicates that costs for nursing care vary according to the size of the facility and the type of certification or license held by the facility. These data show a positive relationship between size and per diem costs in that facilities with less than 50 beds reported an average per diem of $14, while facilities with 200 beds or more reported an average per diem of more than $20. Homes which had obtained both Medicare and Medicaid certification are the most costly, with an average per diem of over $21 per client, while homes without any certification reported costs at $14 per diem. However, a large number of nursing care facilities categorized as "intermediate care facilities" with Medicaid certification only reported per diem costs of slightly less than $12 per client.

[1] Additional detailed presentations on costs for nursing homes are shown in the section on *Residential Programs for Aged Mentally Ill*, p. 19.

Halfway Houses—Eighteen halfway houses for mentally ill adults which responded to the HHI reinterview (1976) reported an average of 24 residents per facility. The average total facility budget for these halfway houses was slightly less than $193,000 per annum (appendix table 1). Average daily costs for these programs varied by region, from a low of slightly under $13 per diem for homes in the North Central area to a high of about $34 per diem for homes in the Western Region. Costs for facilities were shown to increase by about 27 percent from the earlier HHI survey (1974) to an average of about $19 per diem for 1976.

Boarding and Foster Homes—Since most boarding home programs serve aged clients, the reader interested in boarding care costs for the mentally ill is referred to the section on Residential Programs for Aged Mentally Ill.

Sheltered Apartment Programs—From initial data for apartment programs, costs were abstracted from Goldmeier and supplemented by programs referenced in other sources (Goldmeier, 1975). A small "snowball" sample (see chapter II, Methods) was developed which began with facilities identified by Goldmeier and asked respondents from these programs to describe costs of their services and to provide referrals to other apartment services. Reports from 14 apartment programs are shown in Table 5. The average per diem cost was $3.15 per client. The number of apartments in each program ranged from 2 to 50 with an average of slightly over 12 apartments per program. The total number of residents served by each program also shows a wide range, from 4 to 200, with a mean of 42 clients per program and 3 clients per apartment.

Apartment program providers were asked for both per diem costs associated with operating the program, exclusive of rents and meal costs, and for startup costs on a per resident basis. Startup costs were obtained from five programs which reported an

Table 5. Per Diem and Startup Costs for 14 Apartment Programs Serving the Mentally Disabled, by Region

Regional Location	Number of Apartment Units	Number of Residents	Per Diem[a] Cost	Startup Costs Per Resident
Northeast -				
Boston, Ma.[b]	50	200	$1.23	---
New Bedford, Ma.	3	10	6.56	---
Taunton, Ma.	5	25	1.94	---
Bronx, N.Y.[b]	2	4	5.51	---
New York, N.Y.[b]	30	85	.50	---
Philadelphia, Pa.	2	4	3.25	$1,375
Philadelphia, Pa.	11	12	1.92	
Pittsburgh, Pa.	---	100	5.50	
North Central -				
Chicago, Ill.[b]	24	36	2.28	1,300
South -				
Washington, D.C.[b]	9	36	4.67	220
Prince Georges, Md.[b]	7	13	2.00	
West -				
Belmont, Ca.		50	4.93	
San Francisco, Ca.	2	4	1.18	750
San Francisco, Ca.	3	18	2.62	1,500
Averages	12.3	42.6	$3.15[c]	1,029[c]

[a] These costs are for administration and social/counseling services; rents are not included.

[b] Initial source from Goldmeier, 1975.

[c] Unweighted mean.

Source: HHI 1976 Survey Data

average of slightly more than $1,000 per resident. Average per diem charges ranged from $.50 per diem for one Manhattan, N.Y., program to over $6.50 per resident per day for a Bronx, N.Y. apartment program.

RESIDENTIAL PROGRAMS FOR MENTALLY ILL JUVENILES

Introduction—Since very few mentally ill juveniles are placed in intensive medical facilities such as nursing homes or cared for in semi-autonomous living units such as apartments without supervision, a review of costs for residential programs for juveniles focuses on group homes, halfway houses, and foster homes.

Group Homes—Per diem operating costs for group homes for mentally ill juveniles located in Westchester County, New York, are shown in table 6. Separation of total cost (X = $30.38) into five component categories provides useful information regarding the contribution of various activities to total expenditures. Typically, staff costs for intensive and moderate care facilities outweigh all other costs combined, and this general finding is confirmed in table 6 which shows that about 66 percent of total expenditures are allocated to staffing items. Further, since staff costs have been subdivided into administrative and nonadministrative elements we may examine the relationship of these two significant expenditures.[2] First, the ranges and means for administrative and nonadministrative staff costs are quite similar indicating an almost one-to-one cost ratio for these two types of expense. (This relationship can also be observed in large nursing homes as shown in table 8.)

[2] It should be noted that "administrators" of residential programs typically engage in clinical services as well as perform administrative functions, leading to an understatement of service staff activity in terms of dollar expenditures.

Table 6. Per diem operating costs by program elements for group homes for mentally ill juveniles.[a] Expenditures for facilities in Westchester County, N.Y. (1975) (N = 5)

	Per diem costs			
	Range (in dollars)		Mean (in dollars)	Average percent of total budget
	Low	High		
Staff costs				
Administrative	$ 7.56	$15.12	$ 9.30	30.6
Nonadministrative	8.55	14.65	10.61	34.9
Housing	3.38	6.28	4.46	14.7
Resident expenses (food and clothing)	4.53	6.16	4.91	16.2
Office and miscellaneous	.99	1.25	1.10	3.6
Totals	$25.01	$43.46	$30.38	100.0

[a] Capacity for each home is ten juveniles.

Source: Community Residences Information Services Program (CRISP), Westchester Community Service Council, Inc., White Plains, New York, 1975.

Housing and resident expenses (food and clothing) each account for about 15 percent of the budget, while office and miscellaneous expenses account for less than 4 percent. The range of per diem charges for these juvenile facilities, $25.01 to $43.46, and mean cost, $30.38, is considerably greater than the average cost for most halfway house services for other disability groups. However, the average cost for halfway house services for juveniles was found to average almost $28.00 per diem (1976 HHI reinterview data, N = 11) supporting the conclusion that facilities for juveniles are typically more expensive than facilities for other disability groups providing a similar level of care.

Halfway Houses—Eleven halfway houses for mentally ill juveniles were reinterviewed in 1976. Per diem rates averaged $27.76 per child, with a standard deviation of $19.51, indicating a wide dispersal about the mean. Juvenile homes are by far the most costly type of halfway house program and this cost is largely a function of the greater number of staff members typically assigned to work with juveniles on an around-the-clock basis.

Homes for mentally ill juveniles also tend to be somewhat larger than other halfway houses. Of the 11 facilities which reported per diem costs in 1976, the average number of residents per facility was 35 with an average total program budget slightly over $400,000. Facilities for juveniles in the Northeast and North Central census regions reported average per diem costs at about $23.50 per child while facilities in the South and West averaged slightly more than $31.00 per diem per child. Interestingly, no net increase was reported in per diem rates for juvenile

Table 7. Summary characteristics of five types of juvenile facilities: Results of a National survey conducted by the Youth Services Division, Florida (1974)

Type of facility	Per diem costs	Staff to child ratio	Number of States/ provinces[a] responding on cost items
Halfway house: residential facilities for 7 to 35 youths	$16.65	1 to 2.52	13
Group center: residential facilities with "inhouse" educational/vocational programs for 16 to 30 youths	12.48	1 to 2.47	7
Small group home: 4 to 8 youths in a homelike program	12.00	1 to 2.38	24
Large group home: 9 to 15 youths in a homelike program	12.30	1 to 3.07	14
Group foster home: small number of youths in private homes	3.54	——	9

[a] Juvenile facilities in the U.S., as well as those in three Canadian Provinces were included in the study.
Source: Department of Health and Rehabilitative Services, Division of Youth Services, State of Florida, 1975.

facilities interviewed in 1974 and 1976. Facilities reported on the average about $28.00 per diem in costs in each survey. This may represent a kind of upper limit for halfway house costs, but the sample size is not sufficient to further confirm this suggestion.

Group Homes and Halfway Houses (for Juvenile Offenders and Runaways)—Although the problems faced by agencies which serve the delinquent and predelinquent juvenile are somewhat different from those encountered by the mental health service provider, it is likely that many of the residential facilities for juveniles established for "troubled" youths are similar to group homes for mentally ill juveniles. Thus, reviewing reported costs for thes types of programs can serve to validate cost reports from specifically mental health programs as well as to broaden the data base for estimating costs.

Table 7 shows the results of a national survey of homes for troubled youths conducted by the State of Florida. Of particular interest are the costs reported for small and large group homes which serve, respectively, 4 to 8 youths and 9 to 15 youths in a homelike program. Per diem costs for these programs are about $12.00 per child. Foster homes for youths are reported to cost slightly over $3.50 per diem, a figure somewhat low in comparison with The Bureau of Labor statistics estimates for maintaining intermediate standard of living but well within what may be expected in the actual range of program costs. Halfway house costs are somewhat low in comparison to the results of the HHI 1976 survey ($16.97 versus $28.00 per diem). However, data were collected by the State of Florida in 1973 so that inflationary factors must be considered.

Foster Care— A survey of 400 foster families conducted by the Michigan Department of Social Services (1974) reported that the average expenditure for children in foster homes across all age groups was about $4.51 per child per day. However, in examining foster care rates compared to estimated costs prepared by the Bureau of Labor Statistics for maintaining a family at the "intermediate standard of living" the average per diem recommended subsidy for children is about $5.70 per child.

Further, Michigan Social Services recommended that support for children should vary by the age of the child with relatively more support for youths in their teens and less support for young children. Specifically, calculations from the BLS intermediate standard of living figures adjusted for 1975 prices indicate that the daily subsidy rate for children from birth to six years should be about $4.50 per child; for children seven to twelve years of age, $5.70 per child; and for children thirteen to nineteen slightly more than $6.70 per child. An overall average per diem of $5.69 per day for children from birth to nineteen is probably an appropriate baseline (when adjusted for current prices) for many types of foster care, excluding service costs and program administration. The major costs for supporting children in foster care were food ($2.14) and housing ($1.95).

RESIDENTIAL PROGRAMS FOR AGED MENTALLY ILL

Introduction—Transitional programs for the aged, that is, the older discharged mental patient or the aged person requiring residential care less intensive than that provided by the psychiatric hospital, have received considerably less attention than transitional facilities or alternatives to hospitalization for younger clients. In reviewing the age profiles of all the transitional facilities reported in the NIMH and the HHI studies of residential facilities, comprising over 1,000 separate programs, no program was found to serve a predominantly aged population. Only a handful of programs served any persons over 65 years of age and no programs were found which had more than 50 percent of their clients in this age category. The lack of transitional programs, or at least their lack of visibility, may also be related to the likelihood that when the aged are discharged from institutions they take up permanent residence in boarding or nursing homes in the community. Viewed as not likely candidates for independent living, the aged are therefore seen as not in need of transitional programs. This may be an unwarranted assumption on the part of care providers, but it would appear to be the norm in terms of the apparent minimal availability of services.

Nursing Homes—Therefore, discussion on programs for the aged begins with an examination of facilities which are potentially transitional, though they often become permanent residences—namely boarding and nursing homes. Additionally, a specifically transitional program now underway in Pennsylvania is reviewed.

While it would be desirable to present data on costs for psychiatric nursing homes, especially those serving aged clients, such data are not readily accessible. Therefore, the results of a recent national

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Table 8. Characteristics of Nursing Homes in the U.S.: Selected Findings from a National Sample Survey (1972-1974) (N = 1908)

Operating Characteristics:

Number of homes	15,700
Number of beds	1,174,800
Average number of beds	75
Average occupancy rate	88.2%

Financial Characteristics:

	49 beds or less (6400)[a]	50-99 (5500)[a]	100-199 (3200)[a]	200+ (600)[a]
Non-nursing labor costs per client day	$3.38	$3.78	$4.23	$6.20
Nursing staff costs per client day	5.21	5.22	5.64	6.70
Operating, fixed and miscellaneous costs per client day	5.69	6.77	7.25	7.42
Total average per diem cost	14.28	15.77	17.12	20.32

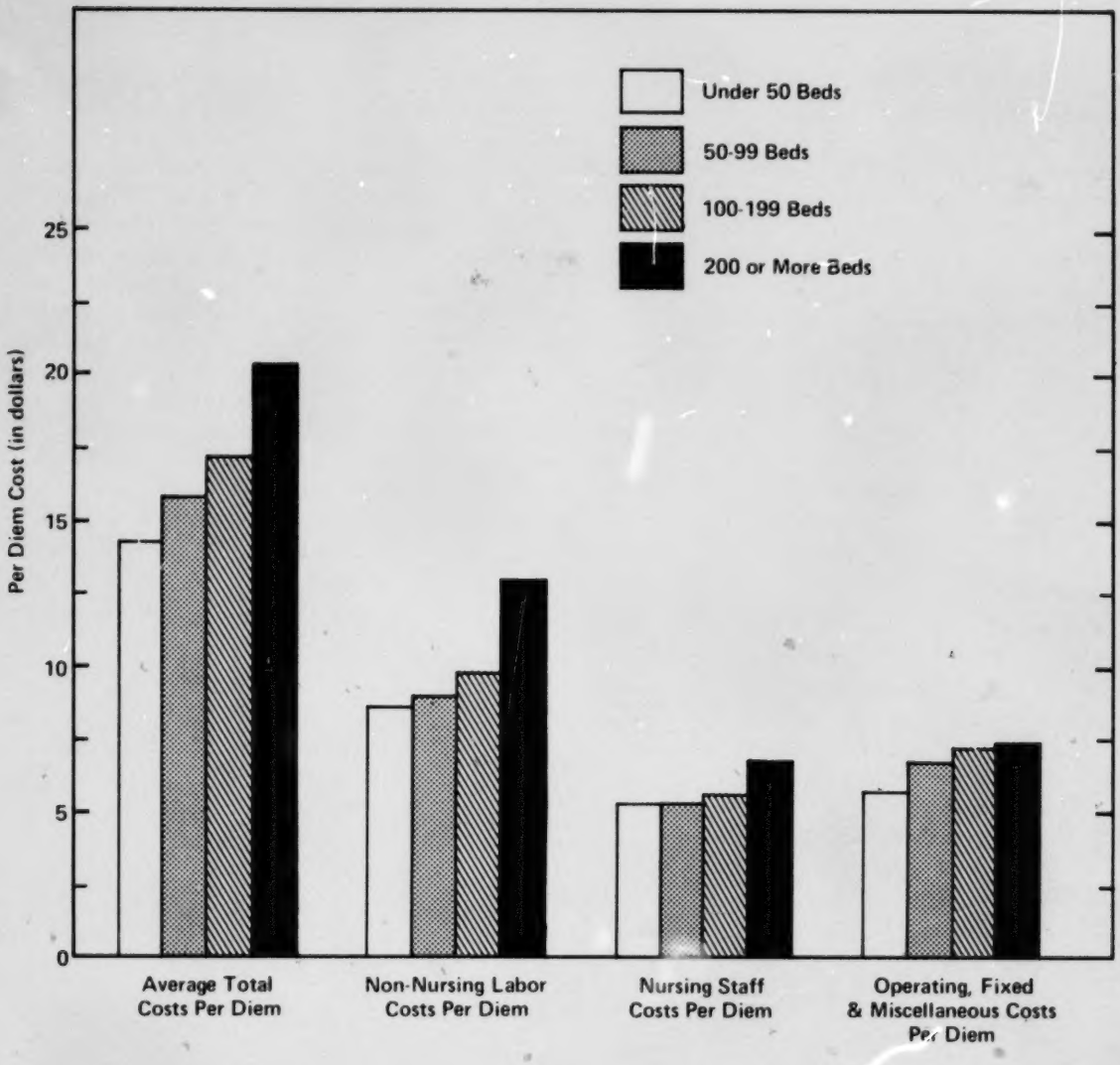
Charges per Client Day by Type of Certification:

Medicare and Medicaid certification	$21.77 (N=4200)[a]
Medicaid certification only -	
Skilled nursing homes	$15.58 (N=3500)[a]
Intermediate care facilities	11.99 (N=4400)[a]
Not certified	$14.03 (N=3600)[a]

[a]Estimated number of facilities in the U.S.

Source: Selected Operating and Financial Characteristics of Nursing Homes. U.S. DHEW, Public Health Service, 1975

FIGURE 2. COMPONENTS OF NURSING HOME COSTS, AVERAGE PER DIEM COSTS BY NUMBER OF BEDS, UNITED STATES, 1972



Source: Selected Operating and Financial Characteristics and Nursing Homes. U.S. DHEW, Public Health Service, 1975

survey of nursing homes in the United States conducted by NCHS are presented in summary form. A total of 1,908 nursing homes across the U.S. were surveyed through a random, stratified sample. Table 8 shows selected organizational and financial variables from this survey. Average facility size was 75 beds, and the average occupancy rate was 88.2 percent.

Financial characteristics of nursing homes are shown for varying sizes of facilities broken down by cost elements such as nonnursing labor costs, nursing staff costs and operating and miscellaneous expenses (see figure 2). It is most interesting to note that there is a fairly linear and positive relationship between facility size and total cost as well as each cost element. Not only does total average per diem cost increase from the smallest facility type, less than 50 beds ($14.28), to the largest facility type, 200 beds and over ($20.32), but costs for each component of program budgets also increase in a somewhat similar manner.

Per diem charges for nursing homes also vary by the type of certification the home has received. Facilities which are certified under both Medicare and Medicaid average slightly over $21.00 in per diem costs, while facilities which are not certified cost approximately one-third less ($14.03). Importantly, facilities with Medicaid certification only, which are also intermediate care facilities, show the lowest per diem costs ($11.99).

Boarding Homes and Domiciliary Care— While many aged clients are placed in nursing homes, a large number may find boarding home care more appropriate than the more intensively supervised nursing home. An overview of boarding home costs is drawn from a large survey (N = 1,494) conducted by the Commonwealth of Pennsylvania (1974). In table 9, selected characteristics of this sample of boarding homes are shown. The occupancy rate for these facilities was reported at about 91 percent which compares closely with occupancy ratios from a large sample of nursing homes (88.2 percent). Thus, for planning purposes, anticipating a 90 percent occupancy rate for these facilities seems quite reasonable. The mean number of residents in boarding homes is slightly less than nine per home. Per diem charges in boarding homes range from a low of $1.43 per day to a high of $22.00 per day so that some boarding homes re-

Table 9. Selected characteristics of a sample (1974) of boarding homes in Pennsylvania (N = 1,494 [a])

Organizational variables	
Mean number of residents	8.8
Mean capacity	9.7
Occupancy ratio (residents/capacity)	91.0%
Charges per diem	
Range	$1.43 - 22.00
Mean	$5.80
Incidence	
Number of homes *per 100,000 population* in 10 most populous counties (population = 6,769,113)	14.95
Number of homes *per 100,000 population* in remaining 57 counties (population = 5,030,660)	10.00

[a] For some variables, the response rate included as few as 896, or 60% of the facilities.

Source: *Survey and Analysis of Existing Community Living Arrangements.* Robert H. Boyer, Commonwealth of Pennsylvania, 1974

port higher per diem rates than some nursing facilities. Yet, the mean per diem charge of $5.80 per client for boarding homes in Pennsylvania is well below the cost of the more intensive nursing home care.

If CMHC's seek to contract for boarding home services, or any other type of residential program, the availability of existing services within the catchment area becomes important. In table 9, the incidence of boarding homes, that is the number of homes per 100,000 population, is shown to be related to the degree of urbanization of the area. Specifically, it was found that there were approximately 15 boarding homes per 100,000 population in the most densely settled counties in Pennsylvania while the remaining 57 less populous counties had an average of 10 boarding homes per 100,000 popul.tion. Thus boarding homes, and certain other types of residential programs, are more likely to be present in greater numbers in urban areas. CMHC's located in nonmetropolitan areas may have more difficulty in finding existing facilities to help serve their clients who require certain types of residential services.

In a large eastern city where boarding homes are plentiful, a rehabilitation agency has agreed to provide placement and monitoring services for clients from two community mental health centers. When counselors at the CMHC's determine that a client is in need of boarding home care, a referral is made to this agency which currently has cooperative agreements with 70 boarding homes serving about 200 clients. A small department with a supervisor, one full-time staff member and one half-time member are responsible for recruiting boarding home proprietors and assisting in the placement of clients in those homes. Additionally, followup visits by members of this staff are undertaken to insure the quality of care received in the boarding home. For each client an agreement between the proprietor and the client is executed which details services to be provided by the proprietor in addition to room and board, e.g., medication supervision, assistance in grooming, and assistance in other personal and social activities. The principal cost for administering this program is about $33,000 per year for staff salaries with additional travel expenses for initiating home placements and followup visits. The per diem rate for administering this boarding home program for the CMHC's, exclusive of the client's charges for the boarding home services, is approximately $0.50 per diem per client. The cost of boarding home service to the client paid to the proprietor ranges from

Table 10. Domiciliary care in Pennsylvania: [a] Estimated costs (1977)

Components of Support: Per diem contributions in direct payments and staffing provided by Federal and State sources

	Per resident/per diem
Supplemental security income	$ 5.18
Regular State supplement	1.07
Domiciliary care supplement	3.78
Total direct support	10.03
Domiciliary care staff (varies by number of residents)	1.10 - 1.37
Total per diem cost	$11.13 - 11.40

[a] The development of a domiciliary care program in Pennsylvania is intended to upgrade foster and boarding care for the mentally ill, mentally retarded, aged and disabled. Additionally, the program links both residents and proprietors with a variety of community services expanding the potential for adequate care and treatment.

Source: *Domiciliary Care Program: An Outline of the Proposal.* Commonwealth of Pennsylvania, 1975.

$150.00 to $160.00 per month. Thus, assisting in boarding home placements and ensuring adequate care in the home is relatively inexpensive compared with direct operation of residential services.

While placement in a boarding home may be an appropriate residential option for many clients, it should be noted that many boarding homes do not offer adequate care for clients who need some degree of supervision and assistance in daily living activities. In an attempt to upgrade the care provided in boarding homes and to establish linkages between boarding homes and other social services, the State of Pennsylvania has developed a domiciliary care program which seeks to improve the level of care in the home and provide for continuous monitoring by a team of responsible social agencies. The estimated cost for the operation of this program (table 10) provides a reasonable model for costs for a domiciliary care program with the exception that supervisory and startup costs necessary to establish the program are not included.

In table 10, components of support for the domiciliary care program in Pennsylvania are shown. These include $5.18 per resident per diem from supplemental security income (SSI), $1.07 per diem as the regular State SSI supplement, and $3.78 per diem as the domiciliary care supplement. This brings the total direct support for operating the home, paid directly to the client, to slightly over $10 per diem. Additionally, depending upon the number of clients to be supervised, the cost for the domiciliary care staff may be projected at between $1.10 per client per day and $1.37 per client per day yielding a total per diem cost of slightly under $11.50.

Adult Foster Care—Gerben DeJong estimates that an appropriate daily rate for an intermediate standard of living (based on Bureau of Labor Statistics data) is about $7.00 per person (DeJong, 1975). Components of this estimated daily rate for support of clients in foster homes include $3.34 per diem for personal needs (food, clothing), housing at $1.95 per diem, transportation at $3.63 per diem, and other consumption activities, including recreation, at $1.12 per diem. For basic support, without intensive supervision or clinical services, the $7.00 floor is an appropriate baseline for room and board costs.

Moving beyond room and board, the State of Washington has embarked upon a hybrid program, a cross between domiciliary care (usually provided by boarding home proprietors) and foster care provided by individual families. The program is described by Edward Chouinard in "Family Homes for Adults," (Chouinard 1975). The project includes support for placement in a family foster home and additional service staff to insure adequate supervision and care of clients. The per diem payment in the State of Washington is reported at $11.61 per client comparing favorably with the projected cost of the domiciliary care program in Pennsylvania.

Transitional Apartments—Recently a pilot program for intermediate housing for the elderly was begun at the Philadelphia Geriatric Center:

> In the pilot program, two semi-detached one-family homes were purchased on a street adjacent to the center and two different types of physical arrangements and service patterns were tested. The strengths and deficiencies of the pilot houses provided guidelines for the expansion of the program. Experience had indicated the positive value of the combination of social space and private space; of the age—heterogeneous neighborhood that contributed to the sense of normal community living; of the proximity to the center and its services, religious facilities, shopping and transportation; and finally of the exchange of services among tenants and the participation of their families. (Brody et al. 1975.)

The Philadelphia Geriatric Center acquired an additional seven houses, and performed modifications and renovations in the homes which can be maintained by aged residents and are oriented toward convenience in preparing meals. Charges for rentals average about $97.00 per month.

Support by the Department of Housing and Urban Development (HUD) is an important element in providing these intermediate residential facilities. Open market prices for these apartments, if HUD subsidies had not been obtained, would be considerably higher than the $97.00 actually charged to clients. Involvement by HUD raises an important consideration in the planning of group residences. In reviewing a very large number of residential programs, minimal use of HUD monies has been noted. While some programs for the mentally retarded have made use of HUD funds (in Texas and Michigan), it is likely that many halfway houses and other types of transitional facilities have not sought assistance from the Department of Housing and Urban Development in acquiring homes from the ranks of HUD-owned properties or in gaining mortgage assistance

for either acquisition or renovation of housing. CMHC's which establish residential programs or foster the development of residential programs in their catchment areas should examine the availability of HUD funding and HUD properties.

While we have no estimates of program administration costs associated with the provision of intermediate housing by the Philadelphia Geriatric Center, administrative cost data were obtained for programs in Washington, D.C. and Silver Spring, Maryland. In Silver Spring, the cost of providing an apartment program, exclusive of rent, is estimated at $1.80 per diem for a program that includes eight apartment units and serves 24 clients. In the Washington, D.C. apartment program, one unit serving 4 clients reports $3.94 per diem per client cost. These costs are fairly consistent with costs reported earlier in a discussion of apartment programs for the mentally disabled which showed an average per client per diem cost (excluding rent) at $3.15.

RESIDENTIAL PROGRAMS FOR ALCOHOLICS

Nursing Homes—Drawing upon the 1974 Minnesota survey of homes for the chemically dependent, the estimated cost of nursing homes specifically targeted toward serving the chemically dependent (including drug abusers) shows a per diem average charge slightly more than $18.00 per client. This figure is well within the range of general nursing home costs (table 8) and is an appropriate baseline figure for operation of intensive care facilities for alcoholics.

Halfway Houses—Halfway houses for alcoholics are among the oldest types of facilities in the United States. Further, they are perhaps the most varied of all types of residential programs since many are little more than homes for transients offering no counseling or vocational services with per diem costs as low as $3 or $4. Yet many programs for alcoholics have elaborate programs for the rehabilitation of the alcohol abuser including both counseling programs and training/educational efforts.

The level of program activity provided by a halfway house for alcoholics proved a significant predictor of the level of expenditures. Facilities offering only counseling services, in addition to room and board, reported per diem costs of $9.70 per client. Facilities providing additional services, such as vocational training, were found to have substantially higher costs—$15.20 per client, 56 percent greater than less diversified programs.

Group and Foster Homes—The Minnesota Comprehensive Plan of 1974 reports the results of a sample survey of 81 residential programs for the chemically dependent, a category including both drug and alcohol abusers. The results of this survey indicated that "board and care" and foster programs for alcoholics cost approximately $8.21 per diem. This figure compares favorably with reports of boarding home and foster home care reviewed in other sections of this report and is probably an adequate baseline figure for projecting the cost for this level of service for this target group.

RESIDENTIAL PROGRAMS FOR DRUG ABUSERS

Nursing Homes—In addition to the general nursing home cost data reviewed in our discussion of programs for the aged, additional cost information on intensive services such as nursing homes for the rehabilitation of drug abusers is provided by a survey of facilities in Minnesota which included both alcohol and drug abuse programs under the generic term of "chemically dependent." The mean cost for such programs was slightly over $18.00 per diem per client.

Halfway Houses—There appears to be a significant cost difference for programs for drug abusers depending on the level of program activity in the facility. Homes which provide only counseling or therapy services in addition to room and board average about $14.00 per diem while programs for drug abusers providing these services and any of the following services: detoxification, educational, vocational or job placement programs, had an average per diem expenditure of over $21.00 per client (a difference of 48 percent). This finding is consistent with the observed difference by program level for alcoholic facilities reviewed in the preceding section. Additionally, programs for drug abusers are typically more costly than programs for alcoholics. In contrasting halfway house costs for these two populations, halfway houses for alcoholics which provide the intermediate level of program (counseling and room and board) reported $9.70 in per diem costs compared with the cost of $14.30 for the same level of program for drug abusers. At the next level

of program activity, which may include AA services, detoxification, educational, vocational or job placement activities, programs for drug abusers cost significantly more than level 2 drug programs. And, at level 3, halfway house programs for drug abusers report approximately 30 percent higher per diem costs than comparable programs for alcoholics.

Board and Care Foster Programs—For intensive services for drug abusers, e.g., board and care or foster programs, the Minnesota survey (1974) reported that these types of programs for the chemically dependent population (including both drug and alcohol abusers) cost $8.21 per client per day. This figure compares with projected costs for domiciliary care in Pennsylvania as well as costs for existing boarding home programs which average between $6.00 and $10.00 per diem. Estimated costs (1974) for maintaining an individual at an "intermediate standard of living" (BLS) for foster care for adults is slightly over $7.00 per client per day.

Chapter V. The Economics of Residential Facilities

INTRODUCTION

Through its provision of both postinstitutional and preinstitutional alternative placement, the community residential movement has evolved into an integral component of community-based mental health services delivery programs. However, unlike its more traditional, medically oriented predecessors, especially nursing homes, residential facilities for the mentally ill have not yet undergone the scrutiny of economic assessment common in today's health care arena. The increasing scope and utilization of community-based residential care heightens the importance of ,oing economic assessment. The following discus residential economics is aimed at contributing the first steps in the establishment of a framework for the budgetary planning for residential programs. The specific elements of this initial analysis have been arrayed in three sets of variables which are found to be significant determinants of costs: (1) environmental factors, (2) organizational attributes, and (3) client group characteristics.

While internal characteristics of a residential program (e.g., use of specialists or provision of rehabilitation services) impact the level of cost for the program, external factors such as prevailing wage rates, housing prices, building codes and the availability of ancilliary services also influence costs. These environmental conditions, relatively independent of any action by the residential facility, have been operationalized as locational (urban versus nonurban) and regional (geographic areas) variables. Indications of the impact of environmental factors are presented below.

Organizational variables generally receive major attention in medical costing studies and they are accorded a prominent position here. Selected organizational indicators include the staff-to-client ratio, employment of professional staff, services to clients and auspice (type of ownership or control).

As noted in chapter III, costs for residential programs vary significantly across disability groups. Thus, services to substance abusers are, on the average, less costly than services to the mentally ill, and services to juveniles are usually more costly than services to adults. Therefore, indices of client groups and age groups served are included in the following analyses.

Although each set of variables is reviewed for their bivariate relationship to costs, our aim is to build a more comprehensive model which points to the independent and interdependent sources of cost variation. Throughout this chapter, indices from each of the three sets of variables are also employed as control variables, thus holding constant one source of variation as we test for the possible influence of a second or third variable.

The chapter concludes with a review of regression results which presents an elaborated first schema for residential costs. The validity of the model is attested to by cross-validation with results obtained from independent surveys of residential facilities.

A Focus on Costs— While considerable discussion has appeared in the literature regarding the relative costs of community versus hospital care for the mentally disabled, comparatively few studies offering adequate samples or sufficient analytic elaboration have emerged. Generally, the assessments of economic cost have been limited to expenditure data, which ignore indirect costs for services not provided at the facility. Further, it has been common to focus on average costs to the exclusion of marginal costs.[1]

The problem of assessing client care costs is compounded by the quite significant differences among client groups being served by similar programs. To the extent that particular client populations require more

[1] The importance of the marginal versus average cost problem should not be underestimated. If the average cost for maintaining a client in a hospital setting is, for example, $90.00 per day, it is not likely that the system or systems subventing the cost of hospitalization would "save" $90.00 per day by removing a patient. Although information on marginal costs for hospitalization is spotty, a recent report on marginal costs for mental hospitals (Levinson 1976) indicates that marginal costs run at about 50 percent of the average cost (given small changes in the patient population). Therefore, the savings to the system by removing a patient before additional community care costs are incurred might be $45.00 rather than the implied $90.00 figure when only average costs are considered.

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specialized or more intensive services, costs (inputs) may vary substantially. For example, in "Problems in Analyzing the Comparative Costs of Private Versus Public Psychiatric Care," Sharfstein, Taube, and Goldberg (1977) note:

> One recent study of comparative costs (controlled for age, sex, and diagnostic differences) incurred by patients in U.S. Public Health Service hospitals and in private voluntary hospitals concluded that the Public Health Service hospitals' cost-per-stay is about one-third less than that of private hospitals. Other researchers, who did not control for these critical differences in patient characteristics, reported that Public Health Service hospitals appear to be more expensive than private hospitals. (Sharfstein 1977)

In the following discussion, a model for projecting the costs of residential services is developed which attempts to incorporate appropriate control variables, e.g., region and client group served. The model is intended to provide a comprehensive base for comparative analysis. Yet an important aspect of cost analysis is not addressed here, that of cost/effectiveness. The data bases at hand do not provide information about therapeutic effectiveness (outputs). A more rigorous analysis would include outcome measures based on predetermined criteria and standardized units of service. Nonetheless, with this significant constraint in mind, available data can be employed to address several issues central to the task of estimating residential costs in support of program planning.

Selecting Data Sources—Although a large number of data sources covering a wide array of programs have been utilized to estimate average costs, data containing information on cost and staffing patterns for many types of facilities are relatively rare. Therefore, our analysis of residential economics is largely restricted to analysis of halfway house data since these facilities were the primary target population for two large surveys conducted by the National Institute of Mental Health and Horizon House Institute.[2] These surveys secured cost, auspice, locational, service, and staffing data from several hundred programs. Although halfway houses may differ in some important respects from group homes, apartment programs, or foster care programs (especially in terms of size and use of professional staff), the underlying organizational dynamics and external environmental factors to which halfway houses are subject can be shown to extend to a wide variety of residential programs.

For example, if the staff-to-client ratio is found to be a major determinant of halfway house costs, this finding tends to generalize to group homes, nursing homes and other residential facilities. Similarly, if economies of scale are found for halfway houses, it is likely that facilities providing less intensive and more intensive services will also experience a negative relationship between per client cost and size.

ENVIRONMENTAL VARIABLES: LOCATIONAL AND REGIONAL DETERMINANTS OF COSTS

Community-based residential programs, like other mental health and rehabilitation services, are unevenly distributed across the United States. Further, the availability of services varies widely from city to suburb to rural community. While no single published survey provides a comprehensive nationwide picture of the availability of community-based residential programs, the 1973 NIMH inventory of halfway houses indicates the general occurrence of this type of residential program.

As reported by NIMH, central cities (especially those with 500,000 or greater population) were reported to have the greatest number of psychiatric halfway house beds per 100,000 population. For large cities (500,000 and over) an average of about 12 beds per 100,000 population was reported; for smaller cities an average of about 6.1 psychiatric halfway house beds per 100,000 population was found. For alcoholic facilities the availability of beds in central cities overall was about 15 beds per 100,000. The "urban fringes" reported about 1 bed per 100,000 for psychiatric halfway houses and 1.9 beds per 100,000 for alcoholism halfway houses. Thus halfway houses are a largely urban phenomenon (as are boarding homes shown in the preceding chapter) with fewer facilities located in suburban and rural areas.

As table 11 indicates, per diem costs also vary substantially according to the locale of the residence. Facilities in urban downtown areas reported average daily costs (for 1973) at $11.20 while facilities in rural areas reported costs of over $18.00 per day. An apparent linear relationship between the degree of urbanization and cost per day is indicated in that the

[2] Chapter II, Methods, presents a review of sample characteristics and research methods for these two surveys.

Table 11. Per diem costs for halfway houses by locale: Urban/rural differences

	Urban-downtown	Urban-outlying	Suburban	Rural
Mean per diem cost	$11.21	$12.18	$14.94	$18.33
N	(80)	(83)	(18)	(18)
$F = 3.770$				
$p < .05$				

Source: HHI 1974 Survey Data.

greater the distance from an urban core the greater the cost.

It is probable that the more isolated the facility is from other allied or adjunct services (which may include day programs, vocational and other rehabilitative facilities) the more likely it is that the facility must provide these services through its own "service package." Bearing the full cost of the provision of these services, rather than sharing in their cost through collaborative service arrangements with other agencies, could substantially increase the per client cost of these programs. Additionally, the sharing of highly specialized staff, which is probably common in metropolitan areas, is less likely in nonmetropolitan areas. For example, obtaining the services of a privately practicing psychiatrist on a contract basis is more feasible in a typical metropolitan area because larger concentrations of facilities and demand for services generally attract a larger professional pool from which to draw. However, to include the services of specialists in the nonmetropolitan facility, the program may have to undertake the entire salary burden for the specialist. To the extent that the specialist's services are underutilized in such a situation a diseconomy is generated due to the forced indivisibility of this "resource."

Facility costs also vary widely by region. As indicated in Appendix table 6, per diem costs for nursing homes show sizeable differences among the four major U.S. geographic regions. Nursing home costs are lowest in the South ($13.51) and highest in the Northeast ($21.43). Comparable data for halfway houses, based on the 1973 NIMH survey, show that similar regional variations exist for these facilities as well.

However, since it is likely that both regional and locational (metropolitan versus nonmetropolitan) factors are jointly responsible for cost variations, it is desirable to distinguish between their independent and interactive effects by holding location constant and testing for regional differences. Since this procedure is not readily accomplished with the data at hand, the following conclusions on the impact of locational and regional variables should be viewed as tentative.

Overall, facilities located in nonurban areas are more costly than facilities in large cities. Further, facilities located in the South report lower costs while facilities in the Northeast report higher average costs. Thus, the wide variations in per diem cost for residential programs are, in part, a function of geographic differences.

ORGANIZATIONAL VARIABLES: STAFFING PATTERNS AND HALFWAY HOUSE COSTS

An important determinan of total per diem cost for residential services is the total expenditure for staff salaries. In halfway houses about 50 percent of the average facility budget is attributable to wages. However, wage cost per diem per resident varies substantially according to the number and types of staff utilized by the facility. If the facility employs few or no professional staff members, relying instead primarily upon paraprofessionals or unpaid volunteers, total per diem charges and the proportion of per diem which is devoted to wages diminish significantly.

Table 12 shows the reported per diem cost for halfway houses with four different types of staffing arrangements. The staffing pattern index shown in this table is comprised of four levels of staff utilization, ranging from facilities which have no paid full-time staff (level 1) to facilities where at least one full-time psychologist or psychiatrist (level 4) is employed. The second level of the staffing index includes facilities with full-time paid employees other

Table 12. Per Diem Costs for Halfway Houses: Total Cost and Wage Cost by Staff Complement and Type of Facility

Level:	1	2	3	4
	Volunteers Only	Paraprofessional and Support Staff	Professional Staff (Full-time)	At least one Psychologist/ Psychiatrist (Full-time)
Facilities Serving the Mentally Ill: (N=97)				
Total/Per Diem	a	$ 8.76	$ 11.42	$ 13.70
Wage Cost Per Diem	a	4.01	6.35	7.32
Ratio of Wage Cost/ Total	a	.46	.56	.53
Facilities Serving Alcoholics (N=212)				
Total/Per Diem	$ 9.81	$ 7.50	$ 10.81	$ 9.47
Wage Cost Per Diem	2.97	3.20	5.71	4.45
Ratio of Wage Cost/ Total	.30	.43	.53	.47

a No halfway houses for the mentally ill were staffed by volunteers only.

Source: NIMH 1973 Survey Data

than any professional staff. The third level encompasses facilities with at least one paid full-time professional staff member, other than a full-time psychologist or psychiatrist. Typical professions represented in these halfway houses are teachers, social workers, nurses and members of other disciplines in the health care or rehabilitation field.[3]

For facilities serving the mentally ill, total per diem charges increase with changes in type of staff employed by the facility. Similarly, the wage per diem cost also increases. In comparing all facilities with professional staff to all those with nonprofessional staff, the ratio of wages to total expenses is somewhat higher for the facilities employing professional staff. For facilities serving alcoholics, a somewhat more complex picture is presented, but the basic trend of relatively increasing wage and per diem costs associated with the utilization of professional staff is observed. Further, facilities for alcoholics which utilize professional staff have, on the average, a higher ratio of wage cost to total cost. It thus seems clear that the staffing pattern of a halfway house in terms of the presence or absence of professional staff is an important element in determining the overall costs of the program on a per client per diem basis.

[3] For a more complete enumeration of types of staff employed by halfway houses, see table 11. Distribution of Halfway House Staff by Status, Discipline, and Type of Halfway House in *Halfway Houses Serving the Mentally Ill and Alcoholics, United States, 1973*. NIMH, 1975, page 53.

Operating Auspices and Facility Characteristics—While the majority of nursing homes in the United States are operated as private-for-profit organizations,[4] most transitional mental health facilities are operated as nonprofit organizations chartered as private agencies, church-affiliated programs, or as adjuncts of governmental units (fewer than 10 percent of halfway houses surveyed by NIMH in 1973 were operated as proprietary establishments). In table 13, characteristics of halfway houses operated by each of three general categories of facility auspice are shown.[5] We can observe that the average number of residents per facility varies considerably according to the auspice of the program. Facilities operated for profit report the greatest mean number of residents (24.1), more than twice the average number of clients in programs operated under government auspices (11.5). How-

[4] For 1971, 72 percent of over 3,000 nursing homes responding to a national survey were reported to be operated as "for profit" facilities. (Social Security Administration, Division of Insurance Studies, 1977.)

[5] Only facilities reporting cost data are shown. The distribution of types of auspices of facilities which provided cost data is slightly different from the overall sample. Of the total responding facilities, (N = 806), 82 percent were nonprofit, 9 percent were proprietary, and 9 percent were operated by governmental units. However, for the 356 facilities reporting cost data, 87 percent were nonprofit, 6 percent were proprietary, and 8 percent were operated by governments. While the subset of facilities reporting costs is fairly representative, profit-oriented facilities are somewhat underrepresented.

Table 13. Facility characteristics for halfway houses by auspice (N = 356)[a]

	Proprietary	Nonprofit	Government	F	p
Mean number of residents	24.1	16.3	11.5	5.49	.001
Mean total budget (000's)	$ 64.7	47.6	46.3	1.58	n.s.
Mean client per diem cost	$ 8.7	9.1	11.8	1.96	n.s.
Occupancy rate[b]	82.8	79.2	76.8	c	c
N	(20)	(308)	(28)		

[a] Reports from only those facilities providing cost data are included.
[b] The occupancy rate (ratio) is calculated by dividing the number of current residents by the number of available client beds. Multiplication by 100 yields the index numbers shown in the table.
[c] No significant differences were found for occupancy rates across the three auspices.
Source: NIMH 1973 Survey Data.

ever, the average annual budget for proprietary facilities is only about 50 percent larger than that for facilities operated by a governmental auspice. This suggests that per diem costs for proprietary facilities are generally lower than those reported for governmental programs (as shown in the third row of the table). For facilities operated by nonprofit organizations, the average per diem cost per client was slightly over $9.00. For facilities operated by governmental units the per diem cost was about $12.00, while for the profit-oriented facilities, the average cost was slightly less than $9.00.

To review, facilities reporting the highest cost per client day, the lowest number of residents per unit, and the lowest occupancy rate are those operated by Federal, State or local governmental units. The observation that governmentally sponsored units are relatively more costly is at odds with the commonly held expectation that proprietary facilities would be more "expensive."

Services and Costs—To identify the factors that contribute to the relatively higher cost for facilities operated under government auspice, our examination has focused on the differential provision of services to clients in facilities operated under different types of authorities.

By definition and design, all halfway houses responding to the 1973 NIMH survey were required to be "in operation seven days a week, with around the clock supervision (or a staff member living in the halfway house), and providing room, board, and assistance in the activities of daily living." In addition, many facilities provided extensive educatonal, rehabilitative and counseling services. By dividing program activities into three categories, (1) basic residential care (room and board with supervision), (2) socialization and/or counseling, and (3) educational, vocational and/or detoxification services, it was found that all facilities which provide educational or training services, (level 3) also offered the services of levels 2 and 1.[6] In fact, a perfectly hierarchical scale was obtained in that all programs at level 2 also include services of level 1 and all programs at level 3 include services found in levels 2 and 1.

The first level of program activity denotes primarily a room and board operation which may include some ancillary activity such as social or recreational programs and daily living skill training. At level 2. programs provide therapeutic services usually in the form of group, family or individual counseling. Level 3 programs also incorporate two or more of the following service elements in addition to those of levels 1 and 2: alcoholics anonymous services, educational, vocational or job placement services and/or detoxification services. Since most halfway houses typically offer some form of counseling or psychotherapy, only a small number of programs were found to be operating at the lowest level. Table 14 shows the mean per diem costs for facilities operating at the highest service level compared to facilities operating at level 1 or 2. Facilities are further subdivided by those serving the mentally ill and those serving alcoholics.

While overall costs for serving the mentally ill are

[6] It should be noted that the response items employed in developing this index of services asked only if the service was available to the clients at the facility. The number of clients receiving each service was not recorded in either the NIMH or HHI surveys. Therefore, the index formed by aggregating positive responses to questions about the availability of services can be taken as measuring only the extensity or range of services provided.

Table 14. Mean client per diem costs by service array and type of facility (N = 352)

	Facilities serving the mentally ill	Facilities serving substance abusers
Programs offering level 1 or level 2 services	$9.97 (38)	$5.89 (16)
Programs offering level 3 services	11.36 (61)	8.95 (227)
T =	1.108	2.840
p <	n.s.	.01

Source: NIMH 1973 Survey Data.

higher than costs for serving alcoholics, per diem costs are substantially increased for both disability groups if the range of services offered includes the program activities provided at level 3.

With respect to the mentally ill, costs for facilities of the highest service level ($11.36) are about 14 percent higher than for those providing a less extensive range of services, although this difference is not statistically significant. For facilities serving alcoholics, the difference is dramatic; facilities providing level 3 services report approximately 52 percent higher costs than facilities with less extensive services ($T = 2.840$, $p < .01$).

Interaction Effects: Auspices and Services— If facilities operated under varying auspices provide different amounts of in-house services, it is possible that the observed higher cost for governmentally sponsored programs is a function of a more extensive service offering. Table 15 tests this assumption by indicating per diem costs by level of service and by type of auspice—proprietary, nonprofit and governmental. Additionally, facilities operated under each type of auspice are separated by the primary disability group served by the facility—psychiatric or alcoholic. This table shows a partial explanation for the relatively higher average cost for governmentally operated facilities and lower average cost for the proprietary homes.

Of the 26 governmentally operated facilities shown in table 15 only one reported that it operated at less than the most extensive level of services. Of the proprietary facilities, 6 of 18 (33%) provided less extensive arrays of services for their clients and approximately 16 percent of the nonprofit facilities provided less than the most extensive array of services. The table clearly suggests that increasing the extensiveness of services to clients is related to a higher level of cost per client day. Governmentally operated facilities are more likely to provide more extensive services and thus expend more dollars per day per client. Only in the case of the nonprofit psychiatric halfway house is there an inconsistency in the otherwise straightforward pattern of increasing costs for increasing levels of service. However, even when the level of services is held constant, governmentally operated and nonprofit facilities report somewhat higher costs than proprietary facilities.

While a number of factors may be contributing to these differences, a possible explanation for this finding may be in the differential salary levels paid at the various types of settings. There is a tendency for paraprofessional and nonprofessional staff to receive substantially higher wages when employed by governmental units. As reported in the *Monthly Labor Review* ". . . workers at State and local government hospitals have enjoyed wage advantages over their counterparts in private hospitals . . .". (King 1974) For example, maids and porters in State and local government hospitals earned, on the average, 12

Table 15. Client per diem costs for halfway houses by service array, auspice, and disability group (N = 342)

	Facilities offering level 1 services	Facilities offering level 2 services	Facilities offering level 3 services
Proprietary—			
Psychiatric (13)*	$ 4.72 (2)	$ 7.69 (4)	$ 8.37 (7)
Alcoholic (5)	——	——	8.11 (5)
Nonprofit—			
Psychiatric (68)	11.20 (16)	10.27 (15)	12.63 (37)
Alcoholic (230)	5.08 (12)	8.35 (4)	8.63 (214)
Government—			
Psychiatric (18)	——	5.36 (1)	9.82 (17)
Alcoholic (8)	——	——	16.97 (8)

* Number of cases reporting for each category are in parentheses.
Source: NIMH 1973 survey data.

percent more than similar private workers in Baltimore, 32 percent more than private workers in Buffalo, 26 percent more than private workers in Los Angeles and 20 percent more than private workers in Milwaukee.

Scale Economies for Community Residences— If significant scale economies can be obtained in the operation of residential programs, then facilities with larger capacities and greater numbers of clients should theoretically be less costly on a per client basis. This issue of scale economies for residential facilities was addressed directly in a recent study of halfway houses for delinquent and predelinquent juveniles.[7] Insofar as the methods and findings of this American Bar Association study are substantially in concert with those obtained through analysis of halfway house data collected by NIMH and HHI, extended excerpts from this report are provided below:

> If, in the long run, it is less expensive to service a larger number of clients, say 25-30, rather than fewer (15), then in the language of the economist, there are economies of scale . . .
>
> In the long run, the halfway house may have to move to a larger facility, or expand the current one, and the salaries and benefits of the director and assistant director may be increased to reflect the increase in the scale of operation (number of clients served), in which case there would be no economies of scale. Based on analysis of operating costs of houses in the sample, the presence of economies of scale cannot be identified in either facility costs or personnel costs.
>
> For facility costs, the analysis is clouded by the fact that the types of facilities vary widely; some facilities have twice as much space (in terms of useable square footage of floor space) per client as others. For the sample, facility costs for houses serving 30 or more clients have higher average facility costs than those serving 15 or less. This does not indicate that there are diseconomies of scale present; analysis of the sample indicates the presence of neither economies or diseconomies of scale in facility costs. For personnel costs, likewise, the analysis indicates the presence of neither economies or diseconomies of scale. Although none of the larger houses have more than one director or assistant director, *they had larger and higher paid staffs than the smaller houses. The weighted average personnel** cost for houses serving 20 or more clients is $9.24/day as compared to $10.50/day for the houses serving 15 or less.
>
> For nonpersonnel costs, the situation is the same. While it might seem that there could be economies in the purchase of food and other supplies by agencies operating multiple houses, analysis of expenditures of houses in the sample did not establish the presence of any.
>
> The fact that no economies of scale were identified in the sample analysis does not preclude their presence in either personnel costs, facility costs, or (other) nonpersonnel costs. What is needed, in order to determine whether economies of scale exist, is a study of houses offering identical services but serving varying numbers of clients. (Thalheimer 1975)

While Thalheimer's findings regarding the lack of readily observable economies of scale are not conclusive, they are suggestive and are largely replicated by analysis of NIMH and HHI survey data.

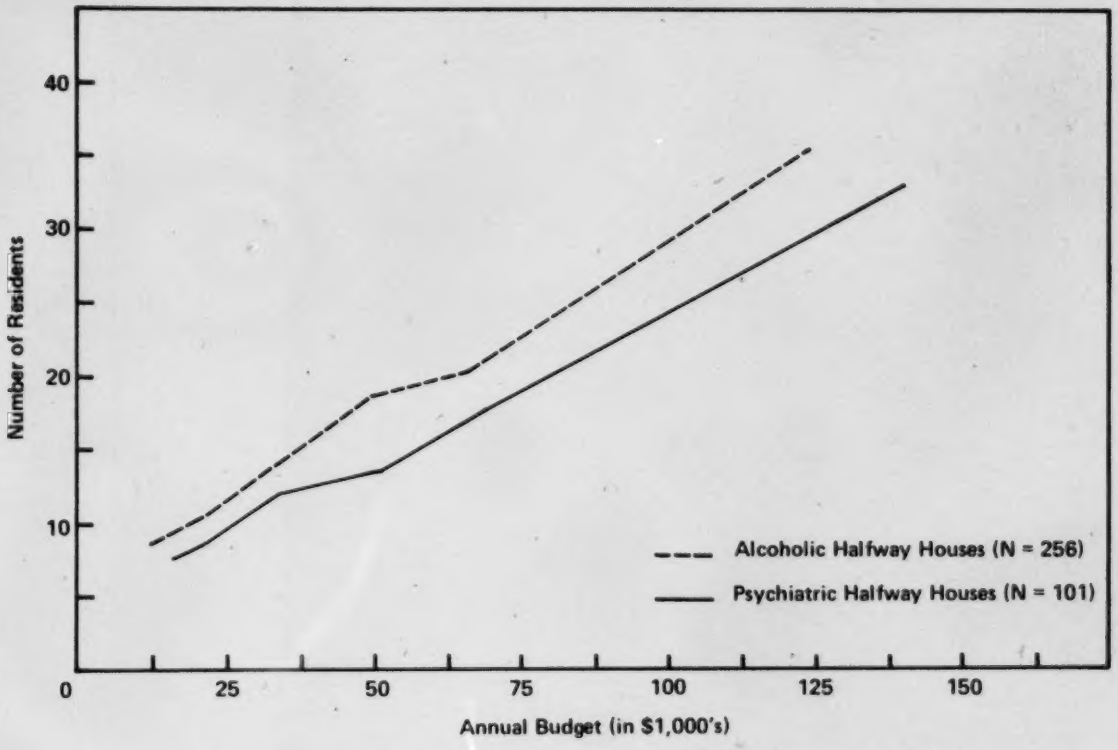
Figure 3 shows the relationship between the number of residents in halfway houses serving alcoholics and psychiatric patients and the total annual budget in thousands of dollars (source: NIMH 1973 survey data). This figure sets the stage for the following discussion on staffing ratios, per diem costs, and scale economies. Since facilities with larger numbers of clients can be seen to have substantially larger budgets, there is little or no evidence that economies of scale occur in halfway houses. If there were substantial economies of scale, the annual budget would increase at a more gentle slope as a function of the number of residents. A second conclusion drawn from this figure is that while facilities for alcoholics report somewhat lower costs for each increment in number of clients, with a subsequent lower per diem expense per client, costs are remarkably parallel over a wide range of facility sizes. This allows combining these two types of facilities for statistical purposes, thus simplifying the following graphical representations.

Figure 4 represents a direct test for economies of

[7] *Cost Analysis of Correctional Standards: Halfway Houses*, Donald J. Thalheimer. American Bar Association, Commission on Correctional Facilities and Services, Correctional Economics Center, Chicago 1975. However, only costs (inputs) were measured; effectiveness was not assessed, leaving open the question of equivalent results for similar expenditures.

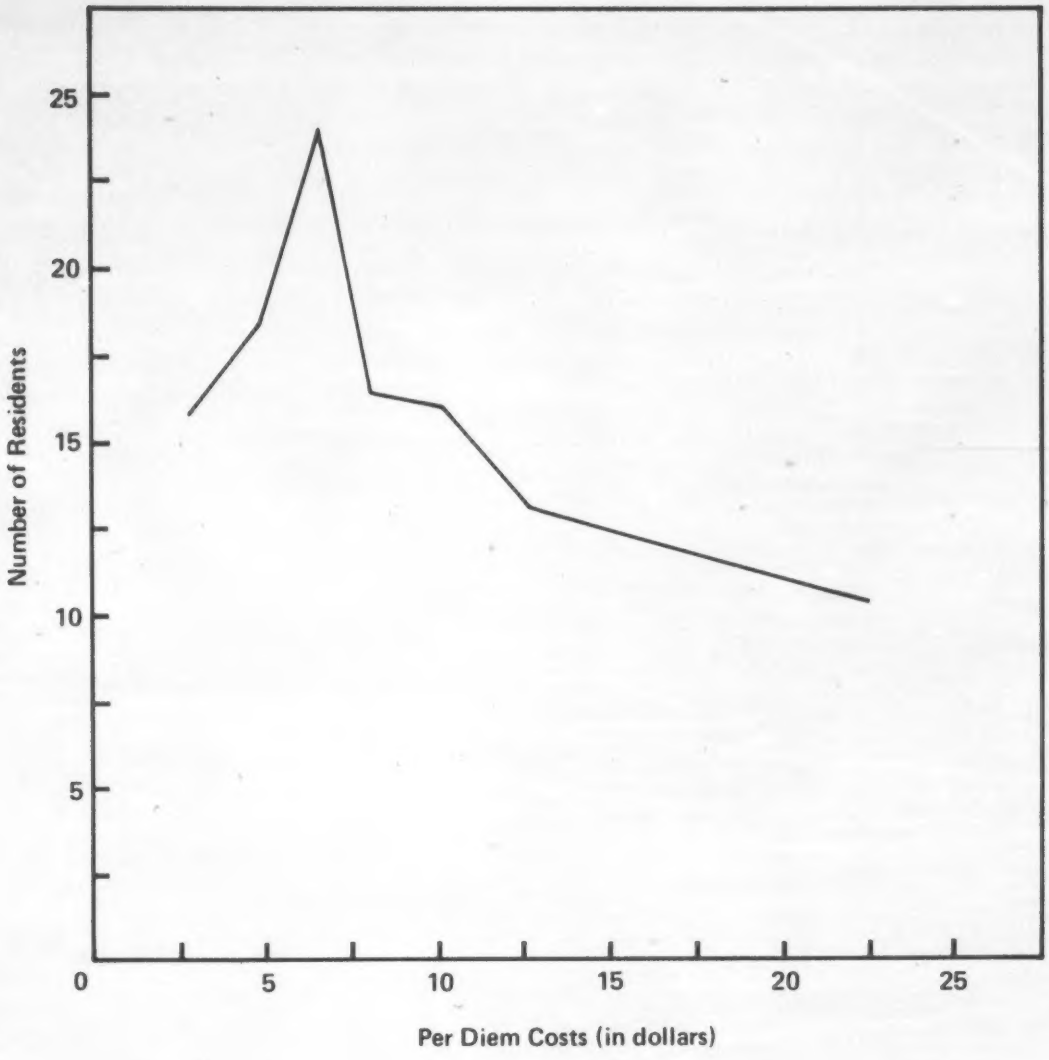
* Emphasis added.

FIGURE 3. TOTAL ANNUAL BUDGET RELATIVE TO THE NUMBER OF RESIDENTS, HALFWAY HOUSES SERVING THE MENTALLY ILL (N = 101) AND ALCOHOLICS (N = 256)*



*Based on Grouped Data
Source: NIMH 1973 Survey Data

FIGURE 4. PER DIEM COSTS RELATIVE TO NUMBER OF RESIDENTS FOR HALFWAY HOUSES (N = 357)*



*Based on Grouped Data
Source: NIMH 1973 Survey Data

scale by plotting the variation in per diem charges as a function of the number of residents in the facility. If substantial economies of scale were directly measurable through this procedure (that is, if some intervening variable, such as different levels of service associated with varying expenditure patterns, does not mask an underlying relationship), there would be a negative relationship indicated by a downwardly sloping line. However, no easy interpretation presents itself. Rather, some facilities with higher per diem costs provide service to a smaller number of clients. Yet many other facilities with low per diem charges also serve a relatively small number of clients. Thus, the substantial cost variation in per diem charges does not appear to be systematically determined by the number of residents in the facility. At the same time, it should be noted that a zero order correlation of —.216 does suggest some scale economy.

In a preceding section, it has been shown that the level of services provided by the facility and the proportion of the budget devoted to salary costs are each predictive of overall per diem charges. Figure 5 shows that the number of full-time staff employed by the facility is related to the number of clients residing in the facility. This linear and positive relationship also indicates that substantial economies of scale are probably not present. Since staff costs represent, on the average, over 50 percent of the total cost and the number of staff increases fairly uniformly as a function of the number of residents, savings which might be obtained by attenuating the staff-to-client ratio are not indicated.

A COMPREHENSIVE MODEL FOR RESIDENTIAL COSTS [8]

The variables that can be identified as contributing to residential program costs include indicators from three distinct dimensions: (1) the external environment (geography and local), (2) internal organizational measures (size, staffing, occupancy rate), and (3) the type of client groups served (disability and age group). The selection of a primary data set to test for the contributions of these factors to per diem cost was largely determined by two criteria. First, the data set must contain adequate indicators for these measures. Second, the number of cases needs to be sufficiently large to allow the use of regression techniques. Both the 1973 NIMH and the 1974 HHI surveys provided indicators that met these requirements. However, because the two sets contained a number of differing variable designations and constructs, it was decided not to combine them. Rather, the NIMH data base was selected because it encompassed a greater number of facilities reporting cost data (NIMH, N = 357; HHI, N = 230) and thereby increased the likelihood of producing a more reliable model.

To address the question of generalizing findings for halfway houses to other types of residential programs, we have compared the findings on halfway houses to a similar analysis of nursing home costs.[9] Specifically, we have examined organizational and environmental variables associated with nursing homes which are shared with halfway houses and other residential programs. If, for example, operation under governmental auspices, as opposed to nonprofit or proprietary organizations, is found to be related to higher (or lower) costs for both nursing homes and halfway houses, it may be argued that governmental auspice may have the observed effect across a wide range of facility types. In addition, results from the Horizon House Institute 1974 survey of residential facilities have been compared with analyses of NIMH data and nursing home data to offer a further cross validation of findings.

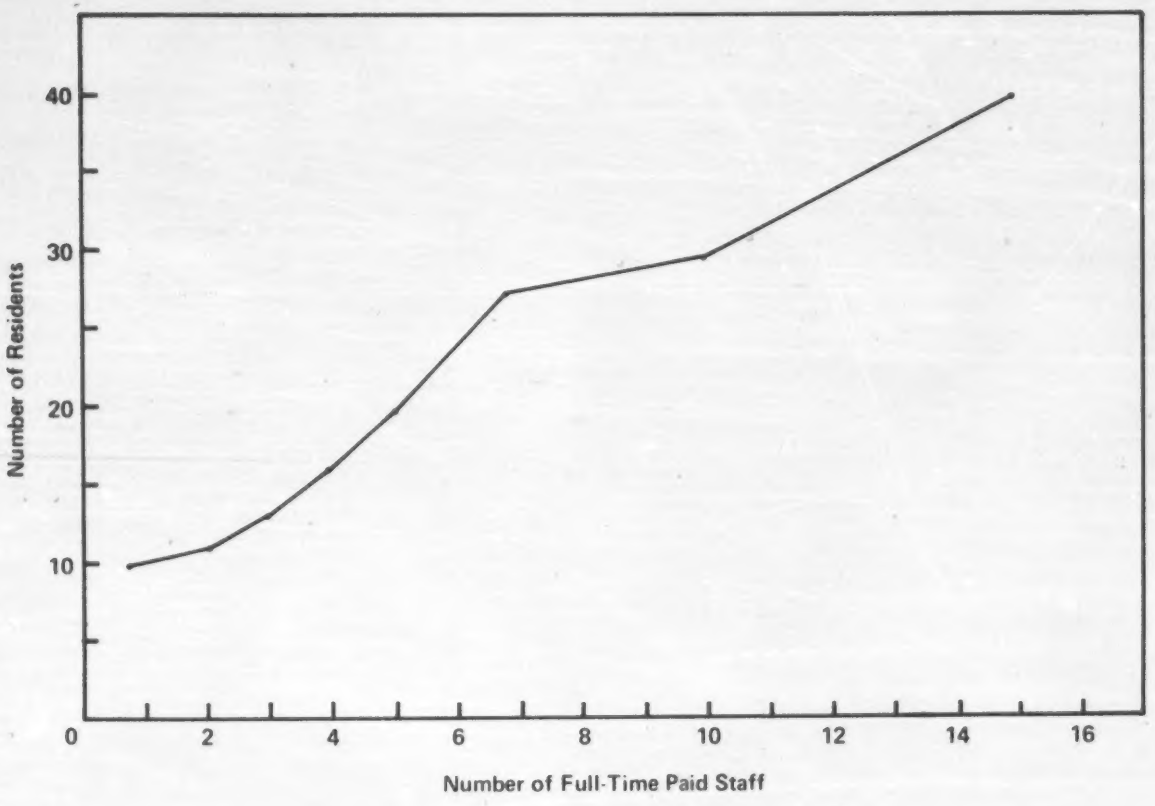
The order of presentation of these findings proceeds from examination of a Pearson "r" correlation matrix for the NIMH halfway house data to the display and discussion of a regression equation based on these data. Correlation coefficients and regression results are also shown for nursing home data provided by the Social Security Administration. In comparing results for nursing homes and halfway houses, selected findings from the HHI survey are also reviewed where appropriate.

Correlations for Cost-Related Variables— Table 16 shows a simple correlation matrix for eleven variables and indices taken from the 1973 NIMH

[8] The model developed below addresses the determinants of cost variation, not the actual, current level of costs, since the NIMH data represent 1972 facility budgets. A more recent survey (1976) of halfway houses and apartment programs as well as a review of contemporary data for group homes, foster homes and boarding homes, provides estimates of the current level of program costs. See Chapter III, An Overview of Operating and Startup Costs for Residential Facilities.

[9] A preliminary regression output for nursing home per diem costs based on 1971 data has been provided by the Social Security Administration, Division of Insurance Studies.

FIGURE 5. NUMBER OF FULL-TIME PAID STAFF RELATIVE TO NUMBER OF RESIDENTS FOR HALFWAY HOUSES (N = 357)*



*Based on Grouped Data
Source: NIMH 1973 Survey Data

Table 16. Selected Zero Order Correlation Coefficients for Cost, Organizational and Locational Variables: Halfway Houses

	Variable Number	2 Number of Clients	3 Staffing Index	4 Staff-to-Client Ratio	5 Occupancy Rate	6 Percent of Clients Under 24	7 Government Auspice	8 Non-Profit Auspice	9 South	10 West	11 Facility Type: Psych(1)/ Alcohol(0)
1	Per Diem Cost	-.216 c	.278 c	.510 c	-.339 c	.256 c	.103 b	-.067	-.136 c	-.128 b	.156 c
3	Staffing Index	.169 c	1.000	.262 c	.076 a	.319 c	.085 a	-.067	-.004	-.168 c	.285 c
4	Staff-to-Client Ratio	-.276 c	.262 c	1.000	-.399 c	.221 c	.136 c	-.073 a	.004	-.109 a	.150 c
5	Occupancy Rate	.410 c	.076 a	-.399 c	1.000	.061	-.009	.001	-.081 a	.022	.130 b
6	Per Cent of Clients Under 24	-.078 a	.319 c	.221 c	.061	1.000	.081 a	-.069 a	.009	-.215 c	.685 c
7	Government Auspice	-.109 a	.085 a	.136 c	-.009	.081 a	1.000	#	.248 c	-.164 c	.232 c
11	Facility Type: Psych(1)/ Alcohol(0)	.008	.285 c	.150 c	.130 b	.685 c	.232 c	-.335 c	.076 a	-.296 c	1.000

a = $p < .10$
b = $p < .01$
c = $p < .005$

\# Correlation coefficient not shown

Source: NIMH 1973 Survey Data; N = approximately 340

survey of halfway houses. A brief description of each of the variables appearing is given below.

Variable #1, Per Diem Costs. Per diem per client costs were calculated by dividing the average daily expenditure in the facility by the number of clients present during the sampling period in 1973. The mean per diem charge for the 357 cases providing cost information was $9.31 with a standard deviation of $6.91.

Variable #2, Number of Clients. The number of clients residing in the facility at the time of the completion of the questionnaire was taken to be representative of the average client population. The mean number of clients was 16.38 with a standard deviation of 13.19.

Variable #3, Staffing Index. An ordinal scale of four classifications of staffing patterns was developed from information provided on the number of regular staff who were full-time and part-time workers. Facilities reporting no full-time paid staff were scored as 1 on the staffing index. If full-time staff were limited to nonprofessional or para-professional occupations, e.g., licensed practical nurses, secretaries, cooks, etc., the staffing index score was coded as 2. If the facility reported full-time employees who were members of professional disciplines, but not psychiatrists or psychologists, e.g., social workers or school teachers, the staffing index score was coded as 3. A staffing index score of 4 was coded if the facility included on its staff at least one full-time psychologist or psychiatrist.

Variable #4, Staff-to-Client Ratio. The staff-to-client ratio is calculated by taking the number of full-time regular staff and dividing this number by the number of clients in residence. The mean staff-to-client ratio was .289 with a standard deviation of .219.

Variable #5, Occupancy Rate. The occupancy rate is calculated by dividing the number of residents by the number of client beds in the facility, yielding a percentage of beds filled. The mean occupancy rate was found to be 77 percent with a standard deviation of 20 percent.

Variable #6, Percent of Clients Under 24 Years of Age. The percent of clients under 24 is a simple index of the proportion of residents who were reported to be juveniles and young adults. The mean percent of such clients was 17.4 with a standard deviation of 25.7.

Variables #7 and #8, Government Auspice and Nonprofit Auspice. In the 1973 NIMH survey, facilities were asked to indicate the "type of organization legally responsible for the operation of the facility." The facility could indicate that they were operated by a government unit, e.g., State, city or county, or they could respond by indicating they were operated as a proprietary (for profit) business or as a nonprofit or church related facility. Three "dummy" variables, scored 1 and 0, were constructed to indicate the auspice of the facility. If the facility was operated by a governmental unit, its score on the government variable was coded as 1. If the facility was operated by a proprietary organization, its score on the government variable would be coded as 0, and 1 would be coded on the profit variable for that case. This procedure was replicated for the nonprofit variable. Only the government auspice and the nonprofit auspice variables are shown in the correlation matrix. The profit variable was omitted because its correlation with per diem costs was negligible ($r = -.021$) and fewer than six percent of the responding facilities indicated that they were operated by a proprietary organization. About eight percent of the responding facilities indicated that they were operated by governmental units and 86.5 percent indicated that they were operated by a nonprofit organization.

Variables #9 and #10, Southern Region and Western Region. Four geographic regions, commonly used by the Bureau of Census and the Department of HEW, were utilized in testing for region-related cost differences. Only the Southern and Western regions are shown in the correlation matrix. These two regions contain the greatest number of halfway house programs serving the mentally ill and alcoholics (approximately 59%). The Southern region includes 17 States and the District of Columbia. The Western region covers 13 States, including Alaska and Hawaii. The States included within each region are found in appendix table 9.

Variable #11, Facility Type. Halfway houses surveyed by NIMH in 1973 were divided into two groups, those primarily serving either alcoholic patients and those serving the mentally ill. For the 357 facilities providing cost data, 28.3 percent provided services primarily to the mentally ill.

As table 16 indicates, a number of variables would seem to be related to per diem cost. Several of these have been discussed at length above (number of clients, staffing index, auspices, region, and client group) in our review of the bivariate relationships between selected organizational and environmental factors and per diem costs. The correlation matrix largely reproduces these bivariate relationships with

per diem costs and provides tests of significance for each. Also shown are the relationships among the 10 "independent" variables.

As shown in table 16, the relationship between per diem costs and the number of clients may seem to point to scale economies ($r = -.216$). However, on further examination we find that as the number of clients increases, so too does the staffing index. In fact, the staffing index is found to have a strong positive correlation with *both* the per diem costs *and* the percent of clients under 24. Thus, the problem of identifying and controlling for the interactive effects of these variables becomes apparent. The following section will show how regression procedures may be helpful in examining this problem.

Regression Results for Halfway Houses—Earlier in this section, data were presented which elaborated these relationships by treating variables such as auspice and client group as control variables. Statistically controlling for a number of variables through regression techniques allows testing for the impact of several variables at the same time.[10]

However, the multiple regression analysis presented does not substitute for the foregoing bivariate and multivariate findings. On the contrary, the regression procedure allows a continuing elaboration of the relationships observed earlier. Essentially the regression procedure provides a way of quantifying the respective contributions of a large number of variables as they help determine per diem costs.

Table 17 displays the results of a stepwise, multiple regression with per diem cost for halfway house services as the dependent variable. Overall, the regression equation accounts for over thirty-six percent of the variance in per diem cost (multiple $r = .603$.) Six variables were found to be significant ($p < .05$) determinants of per diem cost. Variables are presented in table 17 in decreasing order of F scores. The staff-to-client ratio accounts for the greatest amount of variance ($r^2 = .244$) in per diem cost. This finding is consistent with the preceding analyses which show that wage expense is the single largest category of expenditures in halfway houses and that an increasing wage per diem was associated with higher overall per diem cost.

However, the earlier discussion also presented findings showing that the employment of full-time professional staff was positively related both to the staff-to-client ratio and to per diem cost. The regression outcome indicates that a significant contribution to per diem costs is attributable to the staffing index even when the staff-to-client ratio is controlled.

A third organizational variable found to be significantly related to per diem cost is the occupancy rate. Since the per diem rate per client is calculated by dividing the average daily cost by the number of clients, empty beds concentrate cost among the full beds. A facility with a daily total cost of $500 and a client capacity of 20 would show a per diem per client charge of $25 if all beds were occupied. If twenty-five percent of the beds were not in use, the per diem charge would be $33.33 per client. Clearly, substantial variation in occupancy has important consequences for costs.

Two regional variables were employed in the regression, South and West. Each was shown to be negatively related to per diem cost. Correlations (not shown here) indicate that facility costs are somewhat higher for the North Central Region and the East. Appendix table 9 shows the States included in each region. It is likely that the lower costs for Southern-based programs may be related to lower wage scales and lower cost of living factors including housing costs, a significant component of halfway house budgets.

Although per diem cost was found to be significantly higher for halfway houses serving the mentally ill than for facilities serving substance abusers ($11.03 versus $8.63, $p < .01$, appendix table 2), the "type of client" variable did not make a significant contribution to the regression equation. Several interpretations may be considered. First, the staff-to-client ratio, the strongest predictor of per diem cost, is significantly higher in facilities serving the mentally ill. Once this variable has been introduced, much of the difference between these two types of facilities is accounted for. Second, another client variable—the proportion of clients under age 24—also shows a significant independent relationship to per diem cost. However, few alcoholism programs report clients in this age group. Thus, once the staff-to-clients ratio and client age variables have been accounted for, the amount of residual variation explained by facility type is negligible.

This line of interpretation, substantiated by the scores shown in tables 16 and 17, highlights the prob-

[10] For a general review of regression techniques, the reader is referred to Blalock's *Social Statistics*, McGraw-Hill, 1972. A detailed discussion of the primary regression procedure employed here is provided in the second edition of the *Statistical Package for the Social Sciences*, Norman H. Nie, et al., McGraw-Hill, 1975.

Table 17 . A Regression Model for Halfway House Costs[a] (N = 310)

Variable	B[b] (in dollars)	Standardized Beta	Contributions to Explained Variance (r^2)	F Score
Staff-to-Client Ratio	8.99	.290	.244	27.664*
Southern Region	-3.25	-.216	.023	16.852*
Professional Staff Index	1.66	.183	.025	11.838*
Occupancy Rate	-6.35	-.181	.031	9.823*
Proportion of Clients Under 24	4.57	.174	.021	6.527*
Western Region	-1.65	-.109	.008	4.099*
Number of Clients	-.14	-.279	.007	3.133
Government Auspice	2.59	.105	.005	2.080
(Constant)	(9.275)			

Multiple r = .603

r^2 = .364

[a]Per diem per client cost is employed as the dependent variable

[b]Raw score beta

*Indicates F score is significant at $p < .05$

Source: NIMH 1973 Survey Data

lems inherent in distinguishing between casual explanation and statistical explanation. It is probable that "because" a facility serves the mentally ill, the staffing pattern includes more professionals, higher staff-to-client ratios and more youthful clients. Yet the variable of facility type is in and of itself irrelevant in statistically explaining differences in per diem cost.

From a planning perspective, both kinds of explanations are important. On the one hand, estimates of the cost related factors associated with these variables assist the planner in preparing his budget or comparing his program with a large sample. On the other hand, the particularities of a program serving a given disability group can be identified to the degree that they imply varying staffing and costing configurations.

A COMPARISON OF THREE INDEPENDENT SAMPLES OF RESIDENTIAL PROGRAMS

Although the regression model discussed above indicates that several environmental and organizational variables have a significant impact on per diem costs for halfway houses, one may ask if these findings are meaningful only for the particular types of facilities surveyed, or whether findings are relevant in estimating costs for residential programs across a broad spectrum of types of facilities.

To address this question, i.e., the applicability of this array of variables to a more general analysis of residential programs, we have compared results from the 1973 NIMH data with preliminary analyses for nursing home data furnished by the Social Security Administration, Division of Insurance Studies, as well as with data on selected organizational variables drawn from the Horizon House Institute 1974 survey of halfway houses.

Table 18 shows selected correlation coefficients for organizational and locational variables taken from a preliminary analysis of the nursing home data set. In comparing correlation scores for variables related to per diem costs, it may be noted that for both the

Table 18. Comparison of correlation coefficients for per diem costs and organizational variables for halfway houses and nursing homes

Organizational variables	Type of facility and source of data: Nursing homes (Social Security Administration, N = approx. 3,000)	Halfway houses (NIMH 1973 Survey N = 357)	Halfway houses (HHI 1974 Survey N = 230)
Number of clients [a]	—.095 c	—.216 c	—.146 a
Government auspice	.185 c	.103 b	.019
Psychiatric (1) / Alcohol (0)	....	.156 c	.257 c
Occupancy rate	—.551 c	—.339 c	—.202 c

a = p < .10
b = p < .01
c = p < .005

[a] For nursing homes, the number of patient beds is substituted for the number of clients. For halfway houses, the correlation between number of beds and number of clients is .953 (NIMH 1973 Survey Data), strongly supporting the interchangeability of these two variables as they are employed in this display.

1973 NIMH halfway house data (table 18) and for the 1971 nursing home data (table 18), a small but statistically significant negative correlation is observed between size of the program (number of beds for nursing homes and number of clients for halfway houses) and per diem costs. However, the correlation obtained between number of beds and per diem costs for nursing costs ($r = -.095$) is significantly lower than the coefficient for number of clients and per diem costs for halfway houses ($p < .05$). Interestingly, the correlation for number of clients served and per diem costs for halfway houses in the 1974 Horizon House Institute survey (table 18) was $-.146$ (also significant at $p < .05$), a score falling between the coefficient for nursing homes and the coefficient for halfway houses surveyed by NIMH. Thus, the three surveys agree that there are small to slight negative relationships between the number of clients or number of beds and per diem costs.[11]

The relatively minor differences among these surveys point to the inference that similar organizational variables have similar effects in very different types of residential settings, namely nursing homes and halfway houses. This assessment is further supported by comparing the coefficients for per diem costs and government auspices. For both nursing homes and halfway houses, a positive correlation was found between operation under a government auspice and per diem costs; importantly, the two correlation coefficients ($r = .185$ for nursing homes and $r = .103$ for NIMH halfway houses) are not significantly different ($p < .05$). Per diem costs for both nursing homes and halfway houses are also highly related to the occupancy rate; the smaller the proportion of beds in use, the higher the per diem per client cost (for nursing homes $r = -.551$, for NIMH survey halfway houses $r = -.399$, for HHI 1974 halway house data $r = -.202$).

Still another instance of cross-validation congruence is found between the NIMH data and the HHI data with respect to per diem costs as a function of type of clientele served. Both surveys reveal a positive and statistically significant relationship between these two variables (NIMH, $r = .156$; HHI, $r = .257$), indicating that per diem costs are consistently higher in facilities serving the mentally ill.

Table 19 presents the results of a preliminary regression analysis from the Social Security Administration's nursing home data. These results may be compared with those shown in table 17 which presents a regression from the NIMH halfway house data. Although the two regression tables contain several noncomparable items, a number of variables which contribute to variations in nursing home costs are similar to variables associated with halfway house costs. In both instances, the occupancy rate is shown to be significantly related to variation in cost. Other similarities include the impact of regional variables on costs, in that facilities located in the South (especially the West South Central and the East South Central) are likely to have somewhat lower costs, other things being equal, than facilities located in other regions. In nursing homes, as in the case of halfway houses, the size variable (i.e., number of beds) which might indicate economies of scale is shown to have relatively little explanatory power. If significant economies of scale are in fact present in nursing homes or halfway houses, their impact is not readily observable in the data under examination.

To summarize, tests of environmental and organizational variables potentially related to variations in per diem costs for nursing homes and halfway houses have shown that significant variation of per diem costs can be attributed to the occupancy rate, the staff-to-client ratio, the type of saff employed (professional, nonprofessional) and the location of the facility. For selected variables, cross validation with the results of three independent samples confirms the importance of occupancy rate and location in contributing to variation in residential costs. Further, these results establish that nursing homes and halfway houses share cost determining variables which may be included in an even more general model for costs for other types of residential services.

[11] As in the halfway house regression results, the initial relationship between size and cost is greatly diminished in the regression output for nursing homes, table 19.

Table 19. A Preliminary Regression Model for Nursing Home Costs (N = approximately 3,000)

	Variable	B[a/] (in dollars)	T Statistic
1.	Medicare Dominance	.218	26.420
2.	Occupancy Rate	- .192	21.092
3.	Pacific Division	-5.735	13.409
4.	East South Central	-6.689	11.529
5.	Profit Auspice for SNF	-4.111	10.989
6.	Mountain Division	-6.566	10.501
7.	Rehabilitation Facilities	5.627	9.918
8.	West South Central	-7.101	9.614
9.	East North Central	-5.116	9.393
10.	West North Central	-3.386	7.611
11.	South Atlantic	-5.271	7.414
12.	Population Per Square Mi. in County	$.229 \times 10^{-3}$	7.311
13.	Per Capita Income	$.217 \times 10^{-2}$	6.456
14.	Proportion of MD's who are General Practitioners	.040	5.176
15.	Hospital Based	-1.951	4.824
16.	Number of Beds	- .023	4.435
17.	Government Auspice	2.177	4.329
18.	Beds Squared	$.427 \times 10^{-4}$	3.090
19.	Facility Deficiencies	- .156	2.111
20.	ECF/Total Beds Used	- .010	1.880
21.	North East Division	- .892	1.600
22.	Christian Scientist	2.913	1.507
23.	Services	.049	1.127
24.	Distinct Part	.119	.174
25.	% Below Poverty	$.681 \times 10^{-2}$	.171
26.	Domiciliary Care	.794	.131
	(Constant)	(37.008)	(20.752)
	Multiple r = .666		
	r^2 = .443		

a Raw score beta

Source: U.S. Department of Health, Education, and Welfare, Social Security Administration, Division of Insurance Studies (unpublished statistical materials for U.S. nursing homes, 1971)

Chapter VI. Costs to Community Mental Health Centers for Residential Services

A section of the 1976 survey of 61 halfway houses conducted by Horizon House Institute examined potential relationships between these programs and federally assisted Community Mental Health Centers (CMHC's). Twenty-two facilities reported that they were affiliated with a CMHC and, for 11 of these, the CMHC was reported to have incurred no direct costs for placing or maintaining a client in the residence. However, for some of these programs, CMHC's provided substantial assistance through contributions to the staffing of the residential program or by providing services for clients of the facility.

For the 11 facilities which reported that a CMHC has actually provided funds for the program, the range of per diem contributions was from $3.30 to $34.90 per client. The mean cost for placement by a CMHC for these residential programs was slightly less than $15.00 per diem. In line with findings from other data, costs were slightly higher for facilities serving the mentally ill compared to those serving alcoholics.

For the majority of these 11 cases where a CMHC supported the placement of a client in a halfway house, the amount contributed by the CMHC was somewhat less than the total per diem cost of maintaining a client in that facility. For example, a facility for alcoholics in Washington, D.C., reported that the CMHC provided slightly less than $13.00 per day for a client. The payment was estimated to cover about 85 percent of the total cost of maintaining a client in the residence. In another example, from Fayetteville, North Carolina, the total reported costs of maintaining a resident in the program was $18.00 per diem, while the CMHC's support for clients in the facility was less than $10.00 per day for each client.

For most cases of direct subvention of a residential program by a CMHC, a per diem per client formula is utilized. However, in one case (El Paso, Texas) it was reported that a grant of $25,000 per year has been provided by the CMHC in support of the general operation of the facility. In turn the facility reserved four beds for CMHC clients. Other forms of mutual assistance between CMHC's and residential programs include the provision of services for clients of those residences in exchange for the placement priorities accorded to the CMHC. For example, in Fall River, Massachusetts, a halfway house for the mentally ill reported that consultation and other services are provided by the CMHC in exchange for the facilities' acceptance of referrals made by the CMHC.

These interesting but relatively unpatterned results from the 1976 survey may be compared with the results of a more recent survey which focused directly on reports from CMHC's rather than their affiliated residential programs. Cases were selected from the 1974 Inventory of Community Mental Health Centers conducted by NIMH which disclosed that 84 CMHC's, out of a total of about 600, directly provided residential services or were affiliated with one or more residential programs. Twenty-one CMHC's selected from this list were contacted to gather information directly from CMHC's about costs for offering these services. Thirteen CMHC's responded to this telephone survey.

The small number of respondents and the widely varient organizational and costing structures they reported does not permit either a statistical review or readily formulated generalizations. Current residential programs for six CMHC's have been selected as examples and are reviewed below.

Case number 1. Florida Three residential facilities for alcoholics are affiliated with this CMHC. A short-term facility served over 1,000 clients in 1976, reporting a per diem per client cost of about $29.00 for this relatively intensive service. A three-quarter-way house, which permitted a longer stay for clients served over 70 clients at a cost of about $12.00 per diem per client. A long-term care facility, which

served 200 clients in 1976, reported a per diem of under $6.00. Thus, the general association between level of services and cost was borne out by the cost schedule for these three CMHC affiliated facilities.

Case numbers 2 and 3. Alabama Two CMHC's in Alabama reported on residences operated by and affiliated with the centers. One CMHC operates three facilities, separating its client population [1] by mentally ill adults, mentally ill juveniles and alcoholics. Consonant with the general findings presented in Chapter V, The Economics of Residential Facilities, the facility serving juveniles was reported as most costly, or about $32.00 per diem per client. The two facilities for alcoholics and mentally ill adults were reported to cost between $23 and $27 per diem.

[1] It is extremely uncommon for facilities to "mix" disability groups. Reviewing client characteristics for over 1,000 halfway houses discloses that juveniles are rarely in residence with adults, and alcoholics and the mentally ill are only infrequently placed together.

Case number 4. Minnesota A single facility for drug abusers is operated by this CMHC. With a capacity of 12 beds, the facility offers basic residential services at a cost of $17.00 per diem.

Case number 5. Ohio This central Ohio CMHC is no longer receiving a Federal staffing grant having completed its eighth year of operation. Two group homes, serving six clients, are maintained by the center. The per diem cost for this program is $14.00 per client.

Case number 6. Wyoming A short-term (average stay of 6 weeks) residential program for alcoholics is operated by the center at a cost of $20.00 per diem. About 100 clients per year are served in this 16-bed facility.

In summary, residential programs operated by or affiliated with CMHC's are fairly characteristic of other residential facilities. Distinct client groups are rarely mixed. Costs are higher for facilities serving juveniles and lower for facilities providing less intensive services.

Chapter VII. Summary and Review

The growing variety, complexity, and development of community-based residential programs is not conducive to the formulation of a single, fixed estimate for the cost of residential services. In fact, there are several distinct types of residential facilities providing varying levels and types of services to a number of disability groups. This rich diversity of programs has led to a typological approach for cost estimation. Cost data for each major type of facility have been assembled and reviewed in chapter III, An Overview of Operating and Startup Costs.

These findings are briefly recapitulated here. Additionally, an analysis of cost-related variables has served to highlight those factors, both internal and external to the facility, which significantly influence cost levels. These findings are also reviewed below in the following discussion.

- *Costs for residential services are highly related to the level of services provided inhouse and to the disability group served.*

For example, 61 halfway houses surveyed in 1976 by Horizon House Institute reported an average per diem of about $19.00 per client. For apartment programs (N = 16) also surveyed in 1976, average costs were less than $3.25 per client, while boarding homes are shown to cost from $4.50 to $8.20 per diem.

- *These sizable differences in costs are largely attributable to two factors: (1) the provision (or absence) of inhouse rehabilitative services, and (2) the number and type of staff employed by the program.*

- *Services to juveniles are typically more costly.*

When facility type (e.g., group home or halfway house) is held constant, residential programs for juveniles are found to be substantially more costly. Among halfway houses surveyed by Horizon House Institute in 1976, facilities for mentally ill juveniles reported an average per diem of over $27.75 while facilities for the adult mentally ill reported average costs at $18.99, a 46 percent difference.

- *There are apparent gaps in the provision of residential programs to some disability groups.*

A typological matrix of level of program service intensity crosscut by type of psychosocial disability group suggests as many as 25 possible types of facilities. Yet, an intensive literature search failed to disclose the presence of eight types of facilities. Some of these empirical "gaps" are programmatically appropriate, such as the lack of sheltered apartment programs for juveniles. Since a residence of one's own is a defining characteristic of adulthood, this is an expected gap. However, our failure to identify halfway house programs for the aged probably points to a genuine service lag. Although older mentally ill clients may be less likely than younger clients to benefit from certain transitional services, many older adults may profit from a transitional rather than an all too common "terminal" placement.

- *Residential facilities are unevenly distributed across geographic and population areas.*

Halfway houses and boarding homes, for example, are more prevalent in urban areas, especially large cities.

- *Startup costs are substantial, often equaling the annual cost of operating the facility.*

Importantly, startup costs vary with the level of services to be provided. Halfway houses may cost 5 to 10 times more per client bed than apartment programs. Further, while some initial costs can be fully anticipated, e.g., down payments for the physical plant or staff training, community opposition may induce significant and highly variable expenditures for public relations and legal actions.

- *The level of services and the degree of supervision provided by the facility account for substantial variations in cost.*

A fairly consistent continuum of decreasing residential costs is observed for facilities which provide fewer services and relatively less supervision. Nursing homes

and halfway houses are typically more costly than group homes, while, in turn, group homes report higher costs than foster home programs. Sheltered apartment programs are least costly, in terms of the net cost to the sponsoring organization.

- *Size, in terms of number of clients, was not found to be a major determinant of costs.*

Although a negative relationship was observed between size and per diem cost for halfway houses, tests for economies of scale for residential facilities responding to three independent surveys of halfway houses and a survey of nursing homes did not consistently point to lower per diem costs in larger facilities.

- *Facilities operated under government auspices report somewhat higher costs than proprietary and nonprofit facilities.*

This finding holds for both nursing homes and halfway houses. However, governmentally operated halfway houses are more likely to employ professional staff and to offer a wider range of services. While these factors account for much of the cost differences among these auspices, it is probable that wage rates for nonprofessional employees are somewhat higher in governmental programs.

- *Costs for residential services sponsored by community mental health centers are typical of costs experienced in other programs.*

Although fewer than 20 percent of CMHC's operate or are affiliated with residential programs, sample results indicate that costs to CMHC's follow the documented patterns of (1) greater expense for a more extensive service package and (2) higher costs for serving children.

- *Substantial geographic and urban-rural variations were found.*

Most importantly, facilities operated in the South reported the lowest costs, while facilities in the Northeast reported the highest per diem rates. Cost of living factors and differential wage rates probably contribute to regional variations. Facilities located in nonurban areas were found to report higher costs than urban programs. Availability of ancillary services in urban areas may permit the use of "out-of-house" services, or the sharing of specialized staff.

- *It is relatively rare for a single facility to serve more than one disability group or to mix juveniles with adult clients.*

Further, facilities for juveniles are, holding the level of services constant, more costly than facilities for adults.

- *The rate of inflation for residential services has matched or exceeded the general inflation rate.*

Residential mental health programs, like other health related activities, have experienced substantial inflation. Higher wage and housing costs are probably major contributors to this trend.

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APPENDIX

Appendix Table 1. Mean number of residents, mean total budgets, and mean per diem costs with standard deviations (in parentheses), for halfway houses (1976)

Disability Group	Mean Number of Residents	Mean Total Budget (in $1000's)	Mean Per Diem (in dollars)	N
Mentally Ill:				
Adults	24.2	$192.9	$19.0	18
	(44.5)	(296.2)	(9.2)	
Juveniles	34.9	404.5	27.8	11
	(26.6)	(399.3)	(11.5)	
Alcoholics	18.2	100.4	13.9	21
	(11.2)	(59.9)	(6.6)	
Drug Abusers	27.2	230.3	19.9	11
	(25.5)	(262.4)	(16.0)	
Total	24.6	208.5	19.0	61
	(29.4)	(275.3)	(11.2)	
Test of Significance:				
	F = 0.800	F = 3.980	F = 4.315	
	p = n.s.	p < .05	p < .05	

Source: 1976 HHI Survey Data

Appendix Table 2. Basic Organizational Variables for Halfway houses by Types of Facility

	Facilities Serving the Mentally Ill	Facilities Serving Substance Abusers	T	p<	X^2
Mean Client Per Diem	$11.03	$8.63	2.988	.01	
Mean Per Diem per Resident Bed	$ 8.66	$5.94	5.522	.001	
Mean Salary Cost Per Diem per Resident	$ 5.82	$4.16	3.201	.001	
Total Annual Budget (dollars)	$59,900	$43,950	3.272	.001	
Mean Number of Residents	16.5	16.3	.150	n.s.	
Mean Number of Beds	19.9	20.9	.608	n.s.	
Proportion of Beds in Use (Occupancy Rate)	81.3%	75.5%	2.481	.02	
Ratio of Full-time Staff to Residents	.341	.268	2.870	.01	
Proportion of Facilities with no Full-time Professional Staff	55%	38%		.01	8.140
N	(101)	(256)			

Source: NIMH 1973 Survey Data

Appendix Table 3. Average Size and Average Per Diem Costs for Halfway Houses by Level of Services and Staffing Index (N=311)

Use of Full-time Professional Staff	Psychiatric Facilities: Low to Moderate Services # of Clients	Psychiatric Facilities: Low to Moderate Services Per Diem	Psychiatric Facilities: High Service Level # of Clients	Psychiatric Facilities: High Service Level Per Diem	Alcoholism Facilities: Low to Moderate Services # of Clients	Alcoholism Facilities: Low to Moderate Services Per Diem	Alcoholism Facilities: High Service Level # of Clients	Alcoholism Facilities: High Service Level Per Diem	N
None	11.9	$7.58	17.2	$8.12	17.0	$6.00	14.8	$7.59	(151)
One or More	17.1	13.11	18.9	12.41	-	-	20.3	10.29	(160)
N	(37)		(61)		(12)		(201)		

Source: NIMH 1973 Survey Data

Appendix Table 4. Halfway Houses for Troubled Youths: Results of a National Survey (1974), Florida Division of Youth Services

Region	Mean Staff to Child Ratio	Average Number of Residents	Per Diem Cost
Northeast			
Maine	.50	10	$16.44
New York	.50	7	17.80
Vermont	.38	15	19.66
North Central			
Illinois	.50	20	16.44
Michigan	.50	12	18.08
Minnesota	.77	14	23.24
South			
Florida	.26	25	12.45
Maryland	.13	35	20.37
Texas	.50	10	18.08
West			
Arizona	.33	12	4.93
Idaho	1.00	35	19.18
Oregon	1.67	10	13.15
Average	.56	17	$16.65

Source: Department of Health and Rehabilitative Services, Division of Youth Services, State of Florida, 1975

Appendix Table 5. The Contribution of Selected Variables to Inflation of Hospital Costs

Item	Average Annual Percentage Increase					
	1951-60	1960-65	1965-67	1967-69	1969-71	1971-73
Total Increase	7.5	6.7	10.3	13.8	14.8	11.5
Increase in Wages and Prices	3.8	3.5	4.1	8.0	8.2	5.9
Wages	5.2	4.7	4.7	9.9	10.0	6.6
Prices	1.5	1.3	2.9	4.8	5.1	4.9
Changes in Services	3.7	3.2	6.2	5.8	6.6	5.6
Labor	3.1	1.7	3.8	2.8	3.7	2.3
Other	4.6	5.6	9.6	9.8	10.3	10.0
Percent of Total Increase Due to:						
Wages and Prices	50.0	51.5	39.7	58.2	55.3	51.3
Improved Services	50.0	48.5	60.3	41.8	44.7	48.7

Source: Price data are from the Consumer Price Index, Bureau of Labor Statistics. All other data are from Hospitals and Hospital Statistics 1973, American Hospital Associaton, 1974

Appendix Table 6. Nursing Home Average Daily Charges and Average Annual Percentage Change, By U.S. Census Bureau Regions

	Average Per Diem Charge (in dollars)			Average Annual Percentage Increment	
	1964	1969	1974	1964-69	1969-74
Northeast	$7.00	$12.75	$21.43	12.8	10.9
North Central	5.62	9.80	14.24	11.8	7.8
South	5.29	10.09	13.51	13.8	6.0
West	6.71	11.51	14.96	11.4	5.4
U.S. Total	6.21	10.78	15.75	12.0	7.9

Source: U.S. Department of Health, Education, and Welfare, National Center for Health Statistics

Appendix Table 7. Selected Values From the Consumer Price Index[a], 1970 to 1976

Items	Years						
	1970	1971	1972	1973	1974	1975	May 1976
Total Food at Home	113.7	116.4	121.6	141.4	162.4	175.8	178.7
Rent	110.1	115.2	119.2	124.3	130.6	137.3	143.8
Home Ownership Cost[b]	128.5	133.7	140.1	146.7	163.2	181.7	189.6
House Furnishings and Operation	113.4	118.1	121.0	124.9	140.5	158.1	167.9
Personal Care	113.2	116.8	119.8	125.2	137.3	150.1	158.9
Medical Care Services	124.2	133.3	138.2	144.3	159.1	179.1	194.6

[a]Base year = 1967
[b]Includes home purchase, mortgage interest rates, insurance, and maintenance and repairs.

Source: U.S. Bureau of Labor Statistics, Monthly Labor Review, 1976

Appendix Table 8. Per Diem Costs[a/] by Budget Components for Children and Adults in Foster Care at the BLS Intermediate Standard of Living

Budget Components	Foster Care for Children and Youth (birth - 19 yrs)	Foster Care for Adults
Food	$2.14	$2.55
Clothing, medical and personal care	.88	.89
Housing (shelter, utilities and furnishings)	1.95	1.95
Transportation	.33	.63
Other consumption items	.39	1.12
Total per diem cost	$5.69	$7.14

[a]Costs are based on Detroit, July 1975 prices as projected from May 1975 prices.

Sources: U.S. Department of Labor, Bureau of Labor Statistics [illegible]utumn 1974 Urban Family Budgets and Comparative Indexes for S[illegible]ed Urban Areas" (April 9, 1975), Table 2; Budgets for a Retired Couple in Urban Areas of the United States, 1967-68, Bulletin 1570-6 (Washington, D.C.: Government Printing Office, May 1970), Table 1; "Three Budgets for a Retired Couple, Autumn 1973" (August 27, 1974), Table 2; and Three Standards of Living for an Urban Family of Four Persons, Spring 1967, Bulletin 1570-5 (Washington, D.C.: Government Printing Office, March 1969). Also, Betty Peterkin, "USDA Food Plans, 1974," Family Economic Review (Winter 1975): 11, Table 5

Appendix Table 9. U.S. Bureau of the Census Regions and Divisions for the United States

NORTHEASTERN REGION

New England

- Connecticut
- Maine
- Massachusetts
- New Hampshire
- Rhode Island
- Vermont

Middle Atlantic

- New Jersey
- New York
- Pennsylvania

SOUTHERN REGION

South Atlantic

- Delaware
- District of Columbia
- Florida
- Georgia
- Maryland
- North Carolina
- South Carolina
- Virginia
- West Virginia

East South Central

- Alabama
- Kentucky
- Mississippi
- Tennessee

West South Central

- Arkansas
- Louisiana
- Oklahoma
- Texas

NORTH CENTRAL REGION

East North Central

- Illinois
- Indiana
- Michigan
- Ohio
- Wisconsin

West North Central

- Iowa
- Kansas
- Minnesota
- Missouri
- Nebraska
- North Dakota
- South Dakota

WESTERN REGION

Mountain

- Arizona
- Colorado
- Idaho
- Montana
- Nevada
- New Mexico
- Utah
- Wyoming

Pacific

- Alaska
- California
- Hawaii
- Oregon
- Washington

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